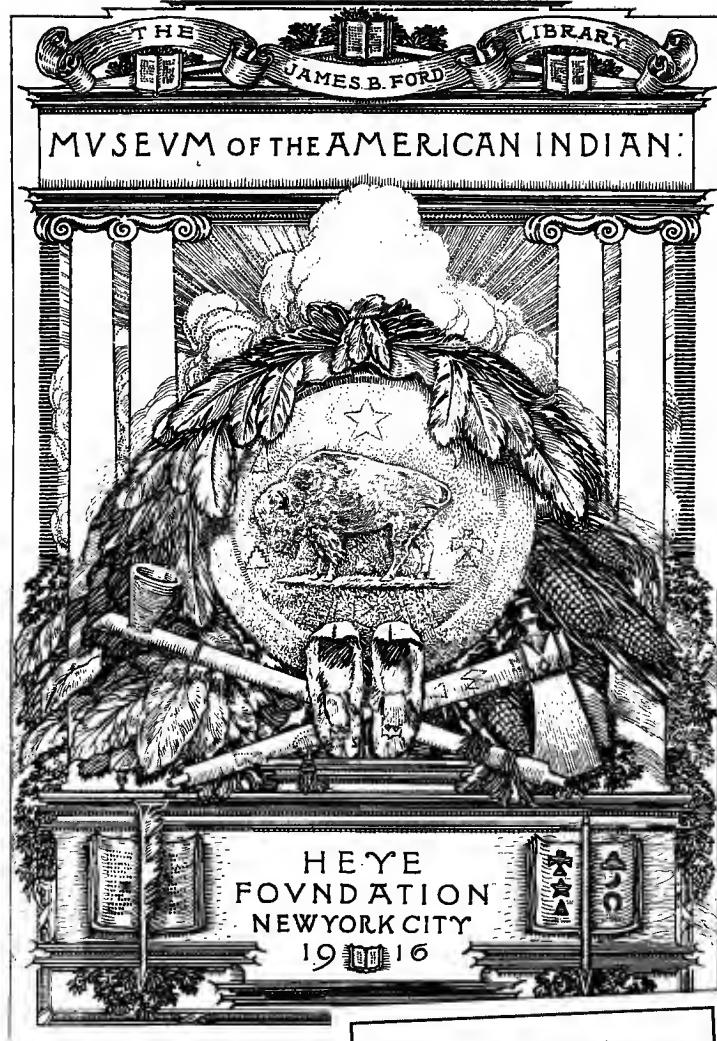


+

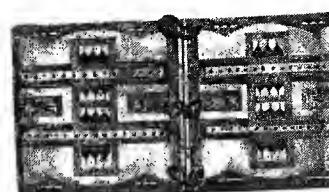
E71

M82F



FREDERICK W. H.

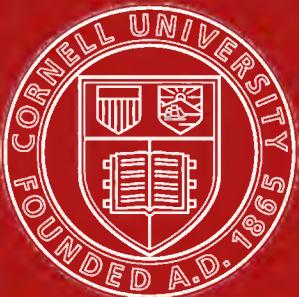
HUNTINGTON FREE LIBRARY
*Native American
Collection*



CORNELL UNIVERSITY
LIBRARY

CORNELL UNIVERSITY LIBRARY

3 1924 104 070 267



Cornell University Library

The original of this book is in
the Cornell University Library.

There are no known copyright restrictions in
the United States on the use of the text.

The Field Diary of an Archaeological Collector.

By WARREN K. MOOREHEAD.

PREFACE.

During the past three years many persons have written me concerning my field experiences and surveys. The results of several explorations have already been published, but it is perhaps wise that what remains should also be given to the public.

A record of excavation is tedious reading at the best, and since this narrative is intended for the general reader and collector rather than the ethnologist, I have introduced incidents and made comments which would be out of place in a strictly technical report. It is my purpose to give readers an idea of how a survey, or expedition, conducts its work.

Although deciding to follow the original field diary, I have found it necessary to make certain changes and omissions. The remarks on the survey of 1892 are extended. Since that time two or three gentlemen have misrepresented the survey and its work, hence my defense. Aside from this Cliff-dweller expedition, as to other surveys, it is not my purpose to enter into a discussion or to criticize, although there is ample evidence to justify me in offering a few strenuous remarks.

In all official reports of archaeological surveys, the human side must necessarily be ignored. This paper, then, is not to be considered as official for the reasons given above, although the explorations themselves are presented strictly as recorded at the time. It is an archaeologist's diary, as the title indicates.

The work done for institutions or individuals is briefly mentioned—also that previously published. The remainder, being carried on at my expense, is described at length.

It has seemed best to leave the narrative in the first person. Naturally, in a diary, the ego predominates, and the whole production may seem more or less egotistic. To change it and eliminate the personal element would destroy the connection and make the diary stilted and unnatural.

W. K. M.

Andover, Mass., Dec. 6, 1902.

CHAPTER I.

I cannot recall the exact date but it was either 1879 or '80. I was visiting relatives in Muskingum County, Ohio, near Rix Mills. A doctor residing there had opened a small mound. On visiting the spot a short time afterward, my cousin and myself found broken bones scattered about the surface. None of them were large, but I secured the head of a femur and have since religiously preserved it as a most treasured possession.

Returning to my home at Xenia, Ohio, I mentioned the mound to Mr. Jacob Ankeney, a collector, and showed him the bone fragment. Ankeney took me to his home and explained the various objects comprising his cabinet. I used to haunt his house and can remember with what pride I carried home a box of broken axes, flint implements and "rejects" which he presented, "to interest the boy" as he told my father. In '87 or '88 he proposed that we buy Fort Ancient, and we visited the work with that idea in view. It was then offered for sale at less than half the amount paid by the State of Ohio some years later.

In '80 and '81 I read all the books relating to Indians or archaeology that the library afforded. In the summer of 1882 a picnic party was organized to visit Fort Ancient, and in 1885 we made another excursion to the place. I had never seen the "Fort" and as Judge Munger, a prominent citizen, was interested in antiquities, he invited me to accompany him. The diary entry made that night shows what an impression the remarkable work made on the mind of a green country lad. There is a statement to the effect that "some day I hope to be able to explore this wonderful mound-builders' ruin," etc. Following the Judge around the embankments, I eagerly drank in all that was said. On the way to the railway station I purchased about forty flint implements and a celt of a farmer.

During the early eighties I roamed the fields of Greene County, sometimes walking twenty miles in a single day, and collected several hundred specimens. This was good training. In the fall of 1883 I went to college at Granville, Licking County, Ohio, and continued surface hunting. In fact, I neglected studies, and on one occasion a failure in Latin examination brought from our professor the following: "Moorehead, if you would put half the time on Latin that you spend in roaming the country, you might make a scholar." I spent two years at Granville, made a large collection and became familiar with Flint Ridge. The village and shop sites were numerous, and I learned much from them. The present Curator of the Department of Anthropology of the Field Columbian Museum, Dr. George A. Dorsey, was

also a student there at the same time. It is interesting to note, however, that he was not then interested, and gave me what few specimens had been found on his father's farm.

In the mounds near Granville I dug small pits. No thorough field work, however, was done until the summer of 1888. January 8, 1888, I wrote for the Ohio State Journal an article on the preservation of Fort Ancient. This was copied extensively over the State and aroused considerable interest, and I received letters from prominent Ohio citizens interested in archaeology. Mr. Graham, Secretary of the Ohio State Archaeological and Historical Society at that time, also wrote and asked me to visit Fort Ancient with him.

In May I spent some days at Waynesville, Ohio, and visited the prehistoric remains thereabout in company with Messrs. William Brown and Israel Harris, geologists. Mr. Harris has since died and left to the Smithsonian the best collection of Warren County fossils extant. He also presented that institution with some five thousand archaeological objects. We also visited the terraces along Caesar's Creek and the Little Miami. These have been the subject of much discussion among geologists and archaeologists as to whether they are of natural or artificial origin. The subject has been threshed out in the American Antiquarian and other publications. Harris was a Yale man, a trained paleontologist, and had written several articles for technical journals. Brown was also a geologist, a man of education and a contributor to journals. The conversations with them opened a new and broad field, and turned my attention to serious study.

Early in May I applied for space at the Centennial Exposition of the Ohio Valley, to be held in Cincinnati July 1 to November 1. Without doubt it was the best exposition of the several held in Cincinnati in the past 30 years. The attendance on some days reached fifty thousand or more. At this affair the Government had a fine exhibit, not the least part of which was that by the Smithsonian Institution. Here occurred my first experience with a political committee. At the time I did not understand their actions, but now it is clear that only persistent efforts secured space. The commissioners referred me to a young man named Wiley, Wiley to Eshelby (who is now a leading politician in Cincinnati), Eshelby to the committee; they to Dr. Metz, of Madisonville, and Metz back to Wiley. I suppose that they finally gave the young collector space because they could not get rid of him otherwise.

Metz and Wiley assigned a space fifteen by thirty-two feet on the third floor of the main building. The exhibit numbered about four thousand objects, filled six ten foot cases, and received an award.



Embankment, East Side, Fort Ancient. The Gaps are "Gateways."

Tuesday, July 9, Dr. Thomas Wilson, Curator of the Department of Anthropology of the Smithsonian Institute, called. That afternoon I also met Mr. Gerard Fowke. Dr. Wilson spent many hours with me during the Centennial and persuaded me to bring the collection to Washington and to study under his direction. Thus began a firm friendship which lasted until his death on May 4, 1902. A biographical sketch of his life, by my pen, appeared in Popular Science News September, 1902.

Early in July, 1888, Mr. Clinton Cowen, civil engineer, began work for me in Clermont County. Cowen and I had been in college together at Granville. July 16 I joined him at Stone Lick and we visited a number of graves and mounds. These are described in previous publications. For several years Cowen accompanied me and made surveys, drew plans, etc., for which I am much indebted to him. His last service was on the Cliff-dweller expedition of 1892.

It is very rare to find mounds in southern Ohio, which contain nothing, save in the hilly sections back from large valleys. That interments were once made in even these I am convinced. Possibly they are so old that all traces of bones have disappeared.

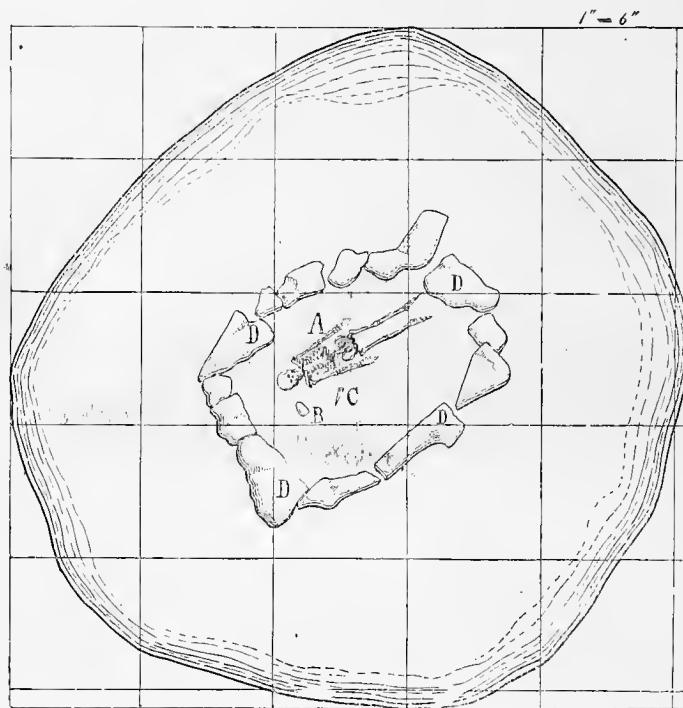
On the farm of Fred Weaver, near Fayetteville, Clermont County, Ohio, is a small mound. It must have been a burial mound, but no indications of skeletons occurred, and the only object was a rough nodule of hematite. From Clermont County we moved into Ross and located at Frankfort.

Two important mounds on the Tighlman Porter estate were opened, one in '88 and the other in '89, and numerous copper objects, pearl beads, etc., were found. They have been fully described in chapters X and XI, "Primitive Man in Ohio."

After exploring the first Porter mound (known as No. 15) we went to Mr. Coiner's farm up the North Fork of Paint Creek and distant about four miles from Frankfort. The large mound there has been described in the above mentioned book. Here a serious accident befell me, and because it is rather unusual for one buried so deep to be taken out alive, and of some interest to physicians, I may be pardoned for relating the story here.

An account was published in *Science* (old series), February 3, 1893, describing the sensations experienced. The front wall at the center of the structure was about eleven feet high and had been undermined eighteen or twenty inches by the workmen. They then went on top and prepared to insert an iron spud and throw down a large quantity of earth. Seeing a small bone that had been uncovered during the undermining, I jumped down into the trench and knelt at the base of the wall, trowel in hand. In the left pocket of a light flannel shirt was my watch, the chain being carried across and fastened to the right suspender.

As the earth cracked loudly, I looked up and started to rise. The falling mass knocked me back about five feet, so that I fell with my head and shoulders resting upon a heap of loose earth. The falling wall was, of course, seen only for an instant. It looked black, and the rush of wind it caused I well remember. My head and shoulders were somewhat higher than my legs, possibly a foot. The feet were spread apart. There was not so much pain as pressure, intense pressure. It forced the buttons of my light field costume partly into the flesh, and my watch chain left a bright red mark across my chest. I could feel the watch strongly pressed against two ribs—



*Diagram of Small Mound, Clermont Co., Ohio, 1888.
D. Stones surrounding skeleton. C. Bone awl. B. Stone celt. 25 ft. diameter; 2 ft. high.*

these were broken. The skin over my forehead seemed cut, but it was the pressure of my straw hat, which left a stamped pattern on the forehead. A knife in my pocket seemed burningly hot. Just under the small of my back lay a large clod. The pain at the point of contact was considerable at times, and my spinal column seemed slowly breaking. Then the pain stopped and I could feel nothing.

Complete consciousness was the peculiar feature of this experience. It made such an impression on my mind that I can recall even at this time—after fourteen years—every detail. The pressure forced all the air from my lungs, and the earth against my face seemed warm, whereas that against the rest of my body above the waist was disagreeably cold. It was impossible to move even a finger, try as I might.

One singular thought occurred. I remembered a story to the effect that during the war a man, to escape capture, was buried in a sand heap by his wife. There is a similar story told of revolutionary times. In both the subject breathes through a tube and remains buried for several hours. Both are impossibilities. One covered by earth or sand not only cannot inflate the chest, but is held as in a mold—perfectly rigid.

Just in front of my mouth and chin was a slight hollow, formed by the arching of two good-sized lumps of clay. I could move my chin and open and shut my mouth. That was the only part of my entire body that could be moved. I remember trying to keep my mouth shut to keep out the dirt. But after a few seconds my mouth instinctively opened, and, the arch having broken down, earth filled it. I remember the horrible sensation of trying to dislodge the earth and the fear of strangling that suddenly seized upon me. I then felt that I was doomed to perish.

Mr. Cowen thinks it was about a minute before they uncovered me. The workmen gave the time as a little more. Certainly it was an age, although they worked as men never dug before. Overhead I felt the earth move and gathered what little strength remained. A shovel cut my scalp, but it was a welcome pain.

They soon had me outside and laid on a heap of wheat sheaves. Just then an hallucination possessed me and I seemed to follow a small, yellow bird about the fields. It had perched upon a tall thistle by the mound and sang as the men carried their burden out of the pit.

The crystal in my watch broke and the case was dented. There were two injuries to the spine—dorsal and lumbar. Paralysis below the waist existed for some days. I cannot now enter a mine or cave, or stand near an overhanging bank without a feeling of horror.

CHAPTER II.

FIELD WORK IN 1889.

After three weeks I was able to visit the Centennial and remained until the Exposition closed, when I shipped the collection to Washington and went to Chillicothe in November to join Wilson and Fowke. We visited several of the large enclosures and mound groups, notably the Hopewell—then called Clark's works. As we stood on the high effigy mound and overlooked the group, little did we think what great treasures lay beneath us. (Explored three years later.)

Shortly after this I went to Washington and displayed the collection in the west end cases of the Smithsonian, on the second floor. For about three years I spent nearly half my time studying under Dr. Wilson, and am greatly indebted to him for his kindness, patience and instruction.

A dispatch in a New York paper, early in January, 1889, stated that a flood in the South Fork of the Potomac near Romney, W. Va., had exposed numerous Indian remains. I at once left Washington to inspect the site. I hired a force of men at Romney and drove eight miles up the river to Mr. Isaac P.'s farm, where the island was situated. The flood had washed out an unknown number of bodies, but not a few remained, buried some two feet deep in loose soil and these we exhumed. Five entire skeletons were found and many fragmentary burials, the latter so near the surface that the plow had disturbed them.

Some triangular arrow-heads, a whole clay pot (not decorated), were with the remains, while scattered through the soil we observed numerous bones of deer, turtle, etc.

In looking over the surface the men picked up many beads, arrow-heads, broken pottery, split bones, carved bones, unfinished celts, etc. The space occupied by the evidences of Indian occupation was about 150 by 200 feet. The most interesting find met with during the excavation of these graves was the discovery of a large ash pit about six by seven feet, five feet in depth. In this were many deer bones, broken pottery, ashes, charcoal, etc. There was no order observed; the accumulation was such as is common on wigwam sites. One object found in the pit was a long, sharp bone awl. This was one of the finest specimens of bone objects I ever saw.

Portions of femur and tibia of a large animal (said by some to be ox, by others bison) were taken from the bottom of this pit. The bones showed action of fire, and were quite fragmentary.

Two days were spent in examining another village site twelve miles down the river on the north side. This village had been little disturbed, and we found many more skeletons, etc. The ground covered by this village does not exceed 200 by 450 feet. In a space of 60 by 100 feet we took out fifteen skeletons in a fairly good state of preservation. All were buried singly and extended, save four. These four were heaped together; the skull of one was missing; the arms and one leg of another were gone. Four others had nothing whatever placed in their graves. Two of the remaining seven had broken pottery and a few arrow-heads with them. The others were buried nearly north and south with the heads to the south. With the first were sixty-two bone beads which, from their curved position, plainly showed they had originally been on a string. The second had a neat little urn, containing a carved mussel shell, placed by his head. This pot was seven inches high, four inches in diameter and was decorated with spiral lines. The third personage had nearly three hundred glass beads between the ulna and radius. A small iron tomahawk near his hand showed furthermore that he had known the whites. The fourth Indian had a copper plate over his head. This plate is four and a half inches long, two inches wide, and is perforated near one end. Beneath his head were twenty-four broken quartz chunks about the size of an egg. The fifth individual had a small copper earring, a copper tip to an arrow, and three large glass beads. The skulls of these five were taken out nearly whole. The average depth of the bodies did not exceed two and a half feet.

The owner of the land presented me with a copper plate and a tomahawk of greenstone from the same spot. He claimed that after a heavy rain twelve circular spots about ten feet in diameter could be plainly seen in the field; that these spots had a reddish color and were arranged in two rows. He further said he thought them burnt spots of ground where wigwams stood and that the field had been cultivated only a few years, which accounted for the spots being still discernible. The bodies I found were all under these spots. No skeletons were taken from ground not included in these reddish circular places.

After the work here was completed, a mound on one of the high hills overlooking the valley was examined. It was of the following dimensions: 35 by 45 feet, 6 feet high. It was one mile north of

Romney. The material was half stone, half earth. Seven men were all day in digging it through; the whole structure was removed. Nothing was found save one decayed skeleton, on the breast of which were five large mica plates, a copper bead which had served as an earring, a slate ornament as another breastplate, and five black serrated arrowheads as weapons. The mica was seven by ten inches in size. The ornament six by two inches with two perforations.

Returning to Washington I continued study for some weeks. I opened correspondence with Mr. Gerald Fowke concerning explorations in the Ohio Valley and on February 23, 1889, I met Mr. Fowke in the State House, Columbus, Ohio, and employed him to assist in field work. On March 12 we began driving about Ross County, and in three days secured permission to open forty-three mounds. We covered eighty miles in the three days. Our rapid movements were due to rather a peculiar circumstance. The Chillicothe collectors had formed a society, and

through two newspapers sought to "drive the foreign despoilers hence" as one of the editors stated. We enlisted a paper on our side and a newspaper war ensued, productive of no good either to the society or ourselves. Land owners naturally concluded that mounds were valuable. The society had no funds and could not explore, but it succeeded in preventing the opening of some mounds, although during the season we explored some twelve or fifteen, and I afterward (during the next three or four years) opened twenty more. Many bitter things were said on both sides.

Part of the time we divided our working force, Mr. Fowke opening mounds at one point while I excavated in another. Sometimes we had ten or a dozen laborers at work. The explorations have been described, with a few exceptions, in "Primitive Man in Ohio."

On May 27 Fowke went to Fort Ancient, and I arrived on the 30th. That day we walked all over the place and held a consultation in the hotel that



End of an Embankment at Fort Ancient, Showing Height of the Wall.

night as to how we should go about exploring it. I told him that I wished to examine it thoroughly, to have Mr. Cowen and himself make the survey while I did the excavating; and to embody the results of the exploration in a book, the chief object of which was to urge Fort Ancient's preservation as a park.

Preliminary to this work Fowke suggested that we visit the principal earthworks within a hundred miles of Fort Ancient. He further suggested a study of glacial phenomena, terraces, etc., abounding in the region. I gladly availed myself of the opportunity to familiarize myself with these sites, for no one knew them better than Mr. Fowke.

We were out about twenty-five days and traveled three hundred and seventy-eight miles on foot, and about six hundred miles by conveyances.

I condense a portion of the field notes (dates omitted): Tuesday and Wednesday we walked up the Little Miami River several miles and examined gravel banks, then walked to Lebanon where we saw the owners of Fort Ancient, the Cowdin and Dunham heirs, and secured permission to thoroughly explore the site. Next day we walked to Morrow and took the train to Cincinnati, where we inspected the various museum collections. Early next morning we went to North Bend, on the Ohio River, where we examined glacial drift and gravel banks exposed by railway cuts and river erosion. We struck the Great Miami River some miles distant and followed it down to Lawrenceburg, Ind. On the way we observed old channels the river had abandoned, and climbed the high hill whereon stands Fort Miami, a work very like Fort Ancient. Burnt clay shows in the ends of the embankments; numerous pottery fragments, flint chips, bones, etc., are scattered about the surface.

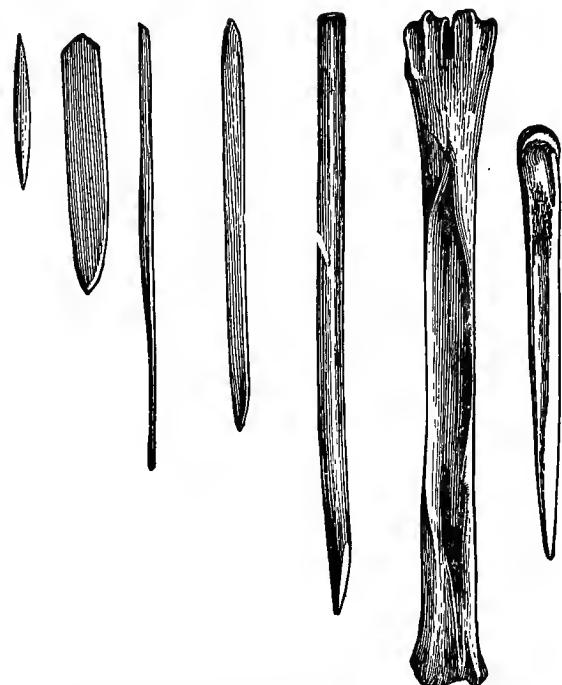
Proceeding to Aurora the next day we hired a skiff and went down the Ohio River three miles to the Kentucky side where there is a moraine and many rocks of conglomerate—all interesting. Returned to Cincinnati for Sunday and went to Eaton, O. Here Mr. L. W. Gunckel joined us for a few days. (Gunckel went on the Cliff-dweller expedition of '92.) A well-defined belt of glacial boulders is here and we followed it all day. At points near Richmond, Ind., and New Madison, O., we studied swamps and drift and saw the site of a glacial lake and dam. Good peat abounds in these swamps. North of New Madison we observed kames and kettle holes.

At Piqua we inspected the site of the so-called paleolithic implements found by Mr. Wiltheiss. Thence to Waynesville, O., where the terraces were again examined. Thence to Fort Ancient and over into Ross, Pike, Scioto, and a dozen other counties—this brief record being but a small part of our travels.

CHAPTER III.

THE FORT ANCIENT SURVEY.

Locating at Fort Ancient the survey was established and we first inspected the famous terraces. The terraces that are found in the little Miami Valley have long been under discussion among archaeologists as regards their origin. They are from twenty to twenty-five feet wide; they run along the hillsides with a surprising regularity of level, and have the appearance of structures designed and executed by the aborigines for a purpose.



Bone Awls and Bone Scraper from the Village Site Along the Little Miami River, Fort Ancient.

Just outside the walls of Fort Ancient, along the side of the fortification next to the river, are two. There is one on the west side of the river, and one far up the river, across from the vineyard hill.

The terrace across the river from the fortification is one hundred and thirty-seven and seven-tenths feet above the river low water level.

The second terrace, at Mr. Ridge's, north of the fort, is one hundred and thirty-six and six-tenths above low water.

The terrace on Mr. Cowdin's place, just along the fort hill, is one hundred and thirty-five and two-tenths feet above low water.

These are very remarkable figures, there being but little more than two feet of difference between the lowest and the highest. This is the more striking,

when we consider that at one point, where the level is nearly the same, the terraces are nearly two miles distant from each other.

The question at once arises, could they possibly be due to natural causes? Does nature ever observe such regularity of platforms, whether made by geological deposits or landslides?

No other answer can be made to these queries, save this: That the terraces are artificial; that they were built by men. We excavated in various parts of them, and our investigations go far to settle the question. We have found in them flint flakes, and a few pottery fragments, several inches below the surfaces; and, in three cases, scales of flint and pottery fragments, one foot in depth. These facts undoubtedly establish the human origin of the terraces. Obviously, they were occupied by men; used by them for some definite object.

Atwater says they were used by the Indians in their wars with the whites; and, in marching against a tribe, they would traverse the terrace as far as it extended. It is noteworthy, also, that these terraces are both numerous and extensive. That which is on the west side, overlooking the river, runs for a distance of over a mile, from Mill Grove, on the south, to opposite the railroad station at Fort Ancient, on the north.

Those at Waynesville, ten miles up the river, have been already mentioned. They are of the same appearance, and in the same kind of soil, as those at Fort Ancient.

The claim that these were made by glacial action, and have no work of man about them, can not be substantiated, for they are not gravel, they are limestone clay; and their formation could not result from glacial action.

June 8 arrangements were made with Mr. Robert Clarke, head of the Cincinnati Publishing House (later The Robert Clarke Company) to bring out the book.*

The firm of Robert Clarke & Company was founded in 1858, succeeding the house of H. W. Derby & Co., who had been in business twenty-five years. Robert Clarke & Company began publishing from the very beginning of their business, their publications being along the lines of history, scientific subjects, archaeology, biography, etc.

Their Ohio Valley Historical Series is justly famous throughout the world. Clarke's private collection of first editions on America, and library of

*As this proof is read, word comes from Cincinnati that the publishing house of Robert Clarke & Co. has been destroyed by fire (February 26). The sheets, plates and bound copies of my several books are lost.—W. K. M.

early American history, now in the University of Cincinnati is one of the finest extant. Mr. Clarke was more than a publisher; he knew much concerning archaeological matters and was an authority on Ohio Valley bibliography. He died in 1899.

He impressed on me the necessity of a thorough exploration—that Fort Ancient was now a jungle and that we would be compelled to expend a large sum of money in order to examine the place carefully and systematically; that we must make hundreds of accurate measurements, for other men might attempt to upset our calculations—a prediction afterward verified. To Mr. Clarke we were indebted for many wise counsels and practical suggestions.

The force employed varied from seven to fourteen persons. Besides Messrs. Fowke and Cowen, Mr. W. W. Ralston acted as stenographer, and Mr. Strong of the Cincinnati Camera Club, and Mr. W. Biddle of Xenia, were photographers. Some of my workmen had dug for me during brief field work in '87 and '88. Three of them went on the Hopewell survey. These men had become quite skilful and could remove skeletons which at first glance seemed too frail to be handled. Decayed skeletons they worked about with hand trowels and whisk brooms, brought the bones into relief by cutting away the earth underneath, whitened the bones so that there might be sufficient contrast between the skeletons and the clay. In some photographs of field work the bones do not show distinctly, because the skeletons are of the same color as the clay. This can be avoided by careful work and whitening the bones as stated above.

We boarded at the hotel run by Mr. J. Van Riper, a character somewhat like David Harum, and full of wise remarks and amusing incidents. He was postmaster, railway and express agent, storekeeper, farmer, hotel proprietor, and last, but by no means least, an inveterate croquet player, able to vanquish all comers. When the graves were opened in the "fort cemetery" and seventy people descended on him for dinner, he called me into the store, threw up his hands and almost with tears in his eyes cried:

"I can handle a dozen people all right, but O, Lord! O, Lord! How am I going to get my money when not half of 'em registered and I can't tell who has et dinner and who hasn't?"

He made a famous remark on one occasion and it strikes me as original, but if not, of course, I stand corrected.

Evenings, after the day's work was done, Cowen and I frequently went over to the country store to hear the comments of the natives upon various questions of the day. Two residents of Fort Ancient were firm believers in the existence of a cave or cavern under the fort, an opinion shared by Col. Van Horne, who spent some time roaming about the place in '90 and '93. Van Riper was wont to tilt his chair against



Hostile Sioux Camp, Near Pine Ridge Agency.

the counter and peruse the county paper. On this particular evening he was disturbed by the extravagance of the county in the matter of expenditures and so forth by the officials, and read us the items making comments meanwhile.

"Now," said he, "what is the sense of this? So much for the sinking fund and so much for the floating debt. There aint no sense in such use of words. Who ever heard of a man who had funds sinking or of a man who had debts floating? Why don't they say sinking debt and floating fund? The man who made them terms was a fool."

Whenever we were in the ravines, hollows or about the depressions and springs we examined carefully in order to prove to all concerned the fallacy of the cave theory.

The labor performed by the survey extended through the summer and fall. The owner of most of the land, Mr. Alfred Cowdin, offered us every assistance and cleared twenty or thirty acres of underbrush, etc. The walls in places, were covered with such a mass of undergrowth that it was difficult for one to force his way through. It was impossible to take photographs until Cowdin's men and my force had spent many days in clearing. I never saw a prehistoric earthwork in the Ohio Valley on which the growth was heavier. The splendid preservation of the embankment is due entirely to this fact. Persons who to-day visit the place and observe the beautiful park which the State of Ohio has made of it can scarcely appreciate the difference between the Fort Ancient of the present and that of 1889.

The river flows in a deep valley 300 feet below the earthwork. Save in the winter no part of the structure can be seen from the valley. Coming up the turnpike one meets with a pleasant surprise.

You ascend the long, steep hill and pass between the walls before you are aware. Indeed, the road builders of a century since cut through the fort embankment where it is about twenty-one feet high,

more or less. Had they but carried the road over the embankment, what a view might greet the eyes as one reached the summit. As it is you pass through the cut and some three hundred feet beyond before the vision bursts upon you. There is nothing like it in the State of Ohio or in the whole Ohio Valley. Small wonder then that beholders who gaze upon the stretch of massive embankments crowned with majestic oaks and poplars stop and ponder in astonishment.

We never tired of the spectacle, although we saw it daily.

On approaching from the southeast one has yet another view and a longer stretch of embankment is visible, yet it seems less impressive to the average observer. To me it is more striking than the first.

To enumerate all the discoveries made by our survey and the subsequent explorations of April-July, 1901, the latter done for Department of Ethnology of the World's Fair, would require more space than is at my disposal. Village sites were found not only within the space enclosed by the walls, but also along the river banks in the valley, and the objects of all kinds found in the ash pits of these sites were strangely like the Madisonville finds. That the same people who camped along the riverside lived within the enclosure it is safe to affirm. Layers of deposits led us to conclude that the sites were occupied at different periods, but one can not say with certainty what length of time occurred between these epochs. It may have been a few years, it may have been generations.

When the survey was completed we published a book in which we urged the preservation of Fort Ancient as a State park. Newspapers took up our plea, and Senator Orin interested himself in the matter. About half of Fort Ancient was purchased by the Legislature and the State Archaeological and Historical Society was appointed to take the property in charge. I was in the East when the first committee visited the earthwork—not the Historical Society Committee—but one appointed by the Legislature. I had offered to visit the site and show the committee about, but received no answer to my letter. The amount expended by the legislative committee would have purchased all of Mr. Cowdin's holdings. A few years later the Legislature made another appropriation and bought the remainder of the earthwork.

There is a story current relative to this first or political committee which is too good to keep. After laboriously climbing the hill one of the members, a large, stout gentleman, who represented one of the districts in a certain city, stood upon the very wall itself and demanded to know of a native:

"Say, where the deuce is this fort, anyway?" I suppose he expected to see brick walls, embrasures for cannon and a deep moat.

The main walls of Fort Ancient are 18,712 feet in extent exclusive of gaps or gateways. Including all other artificial work, such as terraces, wing walls, parallel walls, etc., it is no exaggeration to place the total at nearly ten miles. In the entire country there is no work of prehistoric origin to be compared with Fort Ancient. The original theory that it was built for defense has held good. We can not positively determine the age, and my own estimate of 800 years is but a personal opinion.

Since 1895 the State Archaeological and Historical Society has restored broken places in the walls, has placed drains to prevent wash, has built a house for the accommodation of visitors and has added to the beauty and attractiveness of the place. Too much credit can not be given to the society for its preservation of this wonderful and important landmark of ancient times.

CHAPTER IV.

AN INDIAN INTERLUDE.

After the completion of the Fort Ancient survey I went to Washington and continued work under Doctor Wilson, spending the winter in sorting over some 2,400 trays of specimens. As these represented nearly every section of the United States and were of multitudinous forms and materials a splendid opportunity was afforded for study and comparison.

In February I visited Mr. George E. Bartlett, who lived 25 miles north of Gordon, Neb., and near the Pine Ridge Indian reservation. Bartlett and I had been in correspondence for some months, he furnishing me with notes for one or two popular books on the Sioux tribes. He had seen much service in Dakota in the early days; was United States Deputy Marshal for some time; carried the first mail out of Deadwood; had fought with horse thieves, etc. In short, his real adventures would put to blush many of the so-called "old timers" now traveling about the East. Bartlett and I proposed writing a history of the settlement of the Black Hills from the point of view of the miner, scout and pioneer. To this end several hundred pages of MS. had been prepared. Our co-operation was along historic and popular lines rather than in ethnology proper; of the latter neither of us claimed any knowledge. He had traded with the Ogalalla Sioux at intervals for seventeen years and spoke the language well.

Bartlett took me to Pine Ridge, to Deadwood and to other points of interest. The entry of February 10, is:

"We returned to Rushville (Neb.) from the Agency last night. The moon was remarkably bright. Bartlett told me the story of the famous fight with Exelby's gang of horse thieves, and it was intensely thrilling. Seven men were killed.

"The supper at Pine Ridge was the worst I ever ate. A half breed ran the 'hotel.' A tramp could not have done worse and an Indian would have done better. Depend upon a half breed for the worst, always. The bread was black; the beefsteak spoiled and we could not recognize the potatoes until told that they were such. The coffee was an unknown gray fluid. A Dutch traveling agent ate with us and when I met him on the cars en route East three days later he said: 'How was it? Dot schupper still stays mit me.'"

Even then (February, 1890) there were mutterings of discontent among the Sioux. Bartlett expected trouble, for the Indians were hungry. Just before my departure he said: "They always increase the rations after a fight. I shall wire you in plenty of time."

Returning to Washington study was continued until the early summer when I went to Fort Ancient again and spent three weeks in investigating certain problems which had suggested themselves after the book was published. From thence I went to Clinton County and joined Mr. W. E. Meyer, of Tennessee, and in his company spent five or six weeks in the exploration of a score of small earth tumuli.

In November word came from Bartlett that the Indians were dancing a ghost or spirit dance; that they believed generally in an Indian Messiah who was to come and save them out of all their troubles.

I got an "open" letter from Doctor Wilson and also one from the publishers and went to New York and called at the office of The Illustrated American. This journal was spending large sums in an endeavor to establish a weekly journal, larger, better illustrated and stronger than its contemporaries. Why it failed, many persons are unable to understand. Possibly it was in advance of the times, for Collier's has since followed the same plan and met with astonishing success. But the ways of journalism are past the comprehension of laymen. Suffice it to say that The American gave me carte blanche and I set out for Pine Ridge that very night after less than a two hours' conference with Messrs. Minton and Spencer, the managers and "backers." Mr. Minton had been trained under Bennett of the New York Herald and had his abrupt manner. He ordered me to go to the reservation at once and while we talked had several kodaks loaded and made ready for me to take. One could not have been fitted out for a winter campaign more quickly.

The journal mentioned above has ceased to exist and there are other reasons why I am justified in reproducing—with some alterations and additions—the account furnished Mr. Minton thirteen years ago.

It is a matter of regret that no ethnologist was present during the troubles. Several authorities came

afterward, but in November and December, when the dance was at its height only the newspaper correspondents were at Pine Ridge, and most of them did not appear until the actual fighting began. Though I made no claims to a comprehension of the subject, I had studied the previous Messiah crazes reported in various journals and publications, etc.

I felt the responsibility and determined to do the best possible under the circumstances. There was no one with whom I could advise, for the army officers, press representatives, school teachers, missionaries and others were not concerned with the craze save as it affected them personally or their interests. I telegraphed Bartlett that he should meet me at the railway station and he did so, pouring into my willing ears an account of the trouble as we rode to the Agency.

The land is poor—between Rushville and the Agency. In some creek bottoms nearer the government buildings is fair land, but the worthless predominates. As Red Cloud says, "the whites gave it to us because they could not use it themselves."

On mounting a long hill, after many weary miles of sand and dust, the Agency in the peaceful valley beneath is a welcome sight. On every hand are the indications of busy life; there is in the air a suppressed excitement; a portent of some impending disaster.

After the first feelings of surprise and admiration, you naturally begin to inquire, "Why are these twenty-one hundred and forty soldiers encamped on this spot?" You count all the Sioux and Cheyenne lodges in sight, and obtain a total of three hundred and ninety-seven, which represent some nineteen hundred and eighty-five men, women and children. At a glance you note how the white tents of the infantry and the posts of the one hundred Indian police completely surround the agent's home, the general's quarters, and the warehouses. You see tons and tons of hay—great stacks of sacked oats and corn, for the horses; the offices of the agency are filled with extra rifles and boxes of cartridges, while hundreds of barrels of flour and bacon, crackers and biscuits, are being stored as fast as the teamsters can bring supplies overland from Rushville.

In a word, one is impressed with the security of the Agency, and the enormous quantities of food provided by a kind and generous government for the maintenance of the men sent to hold in check the handful of Sioux who, on account of hunger, have ventured to move farther away upon their own land.

Although many years have passed I see no reason for omitting my question, "Why are these troops here?" That some one had blundered was apparent to any careful observer or intelligent person.

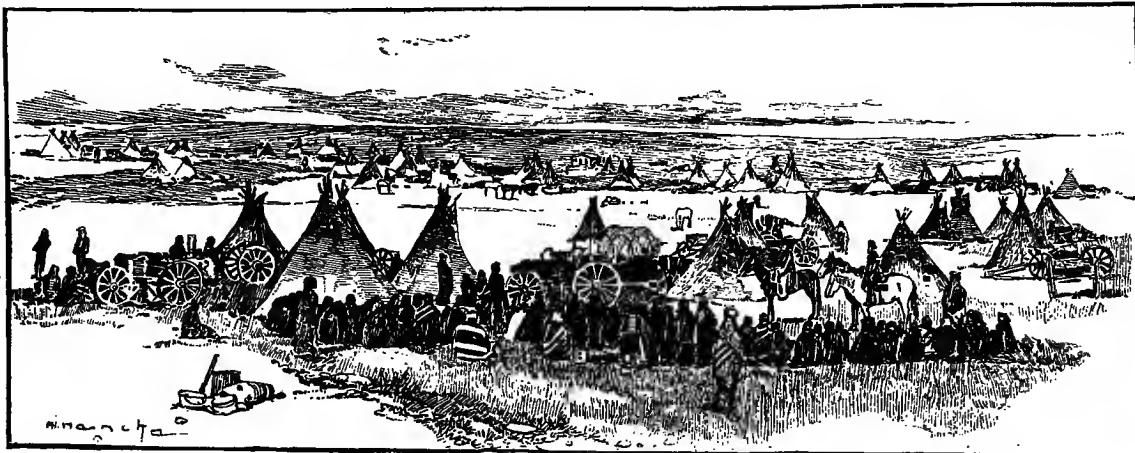
Now, let us return to the published account and the diary and follow the events, using the present tense.

CHAPTER V.

MORE INDIAN EXPERIENCES.

At Pine Ridge the night of the second day after my arrival the Indians were practically surrounded by troops in a tract of country which may approximately be bounded by the Cannon Ball, Missouri, and Niobrara Rivers and a line drawn from Fort Robinson and Fort Mead northward to the Cannon Ball. If they leave this territory and attempt to go northward they must cross the line of the Northern Pacific Railway, any point of which can be guarded in less than twelve hours by the troops from Fort Keogh or Fort Lincoln.

The agency is situated near the center of a broad plain, with hills sloping backward all around. The "hostile camp" was originally situated due north, about eight miles from White River. The distance between the post and Two Strike's village (Two Strike is leader of the hostiles) is about thirty-four miles as a crow flies. Any direct communication except through the priest, Father Jutz, has been out of the question. No white man has been in the camp except Father Jutz, and Judge Burns of Deadwood is the only white citizen who has been at all near it. The government scouts have been near it, but not actually in it, and General Brooke has cautioned all employees and correspondents not to venture in the neighborhood of Two Strike's present quarters. Several of the interpreters here who know the reservation well, and have a personal acquaintance with the Sioux chiefs, frankly admit that they know nothing regarding the extent of the camp. Now, if the difficulty of obtaining information is so great that men familiar with the ways of Indians know but little regarding the state of affairs in the hostile camp, what reliance can be placed in the statements telegraphed to certain newspapers by correspondents who, upon their arrival here, have undertaken to supply full and detailed accounts of the situation? I do not desire to deviate from the subject in hand, but I am compelled to enter an emphatic protest against the wilful misrepresentation that has marked the work of many of the newspaper correspondents. This misrepresentation has been fruitful of evil in two ways. It has given the public at large a wrong impression of the state of affairs, and thereby prepared the public mind to excuse whatever injustice might be perpetrated upon the Indians later. In the second place, the misrepresentation has had a reflex action upon the settlers, and, by increasing their anxiety, has led them to call for sharper measures than were necessary. It has also injured the pros-



Sioux Tipis Near Pine Ridge Agency.

pects of the South Dakota and Nebraska settlers, some of whom have left their homes, frightened by the untruthful stories, and have fled to the larger towns. In a single day, at one small station on the railway, twenty-seven trunks were sent away, and three hundred dollars' worth of tickets were sold.

The effect in preventing immigration is, of course, far worse. As a sample of the way some correspondents collected "news," the following is vouched for: "Four newspaper men were traveling northward in a parlor car on the Fremont, Elkhorn & Missouri Valley Railway. At all stopping places they would jump off and inquire at the telegraph office if any news had come from the agency. Failing to secure information desirable, they deliberately concocted a story of a battle in which sixty Indians had been killed, and telegraphed it back to their respective papers."

One of the first things I did was to call upon the Rev. Father Jutz, and he was of the opinion that while some of the hostiles might come in, a greater part would remain out for some time. A large council was held a few days ago and Little Wound and Jack Red Cloud (Red Cloud's son) says that Two Strike (literally, knocks down two) presided; that one faction desired to return to the agency, but that those who were inclined to be friendly were denounced in the most bitter language by the followers of Sitting Bull and Two Strike.

In speaking of a suppressed excitement prevalent here one does not exaggerate. There are many signs of it. To a new arrival the whole affair seems complicated. Educated and mission Indians are torn by conflicting emotions. Shall they stand by their own people or must they abandon their friends and trust to the whites who have reduced their food and brought in multitudes of men carrying death in their hands?

Those natives who ran away, what of them?

The Sioux fled to the edge of the Bad Lands not because they wanted to fight, but because they desired to worship their Wakantanka and welcome the coming of the Messiah alone and unmolested by whites. Dozens of the so-called hostiles have asked the interpreters, "Why are these soldiers here? We are not for war." The more intelligent of the friendly Indians have regarded the presence of two thousand troops as an insult, when they have not been afraid that this great gathering of soldiers meant, in the end, the loss of what miserable land they had left and the extermination of themselves. Not long ago Little Wound (Taopi-ciqalan) went to the house of John Dryer, the boss herder, and asked for supper. In conversation with the herder, he said: "My friend, I have asked the Great Father for food, for I am hungry, and he has given me none. I am too old to join my brothers in the North, so I must remain with the squaws at the agency and live on what you see fit to give me."

When Congress investigates the present Indian trouble it will find plenty of material for consideration in the following points:

(a.) The shortening of the beef ration one million pounds a year in the cases of a people who are increasing instead of decreasing.

(b.) The difference between the summer and winter weight of a steer.

(c.) The wilful misrepresentation that the Ghost, or Messiah, dance was a war dance.

"When a man is hungry he is in no condition to listen to arguments," said an Indian to me.

Two years before the rations were cut down, and since that time further reductions have been made. The Commissioner of Indian Affairs held that, as some of the Sioux were beginning to raise grain and cattle, therefore the annuities could be diminished.

While on paper a very good showing of the progress of the Sioux is possible, at the agency one can hardly discover that as a race they are greatly improved, so the reduction naturally caused much suffering. All the Indians have not starved, but their supplies have been (and are) insufficient. Here is a story declared to be absolutely true:

Yellow Hair told an agency employee here of the death of Little Wound's daughter about November 18 or 20. "She had been sick for several days," Little Wound said, "and we had no food in the lodge, nor had any of our friends. She begged for meat or broth or bread. I could not withstand the heart-rending appeals of my dying daughter, so I set out for the agency to beg food from the agent. Scarcely had I proceeded ten rods when a squaw came running out of the lodge, crying loudly, 'Toiyanka! Toiyanka!' (Come back! Come back!) I returned and entered my home with fear and trembling. My poor child was dead. As she died she said, 'Oh, give me food! just a little food!' and then falling back on the couch of hides breathed her last."

December 16, the first reliable information regarding the location of the camp of the hostiles was brought in by one of the bravest set of fellows that ever left Pine Ridge Agency. I am safe in affirming that the mission of peace attempted by the thirty-two Indians headed by this half-breed (part French, part Indian) is up to the present the only really brave thing done hereabouts. And they were Indians! Contrast the two—Buffalo Bill's spectacular "After Sitting Bull," and the mission of Louis Shangreau and his companions.

At noon, Monday, the 15th of December, while we sat at dinner in the little hotel, we were startled by hearing a loud "hallo," and, springing from the table, we all ran out in the street. Before our eyes there appeared a sight I shall never forget. Over the hill, a quarter of a mile to the northwest, came riding at full speed thirty-two men, sixteen abreast. Their horses were covered with foam from a long and rapid ride, and as they advanced they chanted in loud tones their song of victory, heralding their exploits. As the cavalcade drew near the song became louder. Louis Shangreau rode at the head, with No Neck immediately behind him. A large crowd gathered in the wake of the horsemen as they proceeded, and gazed with great interest and admiration upon the weather-beaten countenances of the daring fellows.

Every man was superbly mounted and well armed. Six-shooters were strapped to their sides, while the gun-cases (in many instances neatly beaded and

ornamented) were strapped to the saddles. The ponies seemed to partake of the joy of the men, for they pranced about and champed their bits, while their eyes snapped with vivacity. They drew up in front of the general's (Brooke) headquarters, and as the last notes of the song died away leaped from the animals' backs. As they crowded into the commanding officer's presence, we who stood near had the honor of shaking hands with these men. The general himself welcomed them with words of commendation, for he thoroughly appreciated the efforts of the "friendlies" in the desire to prevent bloodshed. The Indians remained closeted with the officers for some time, and then left to return to their several tepees.

Last night, about 7 o'clock, accompanied by my interpreter Bartlett, I visited the lodge of Scout Shangreau, and secured the following narrative regarding the expedition and the intentions of the hostiles:

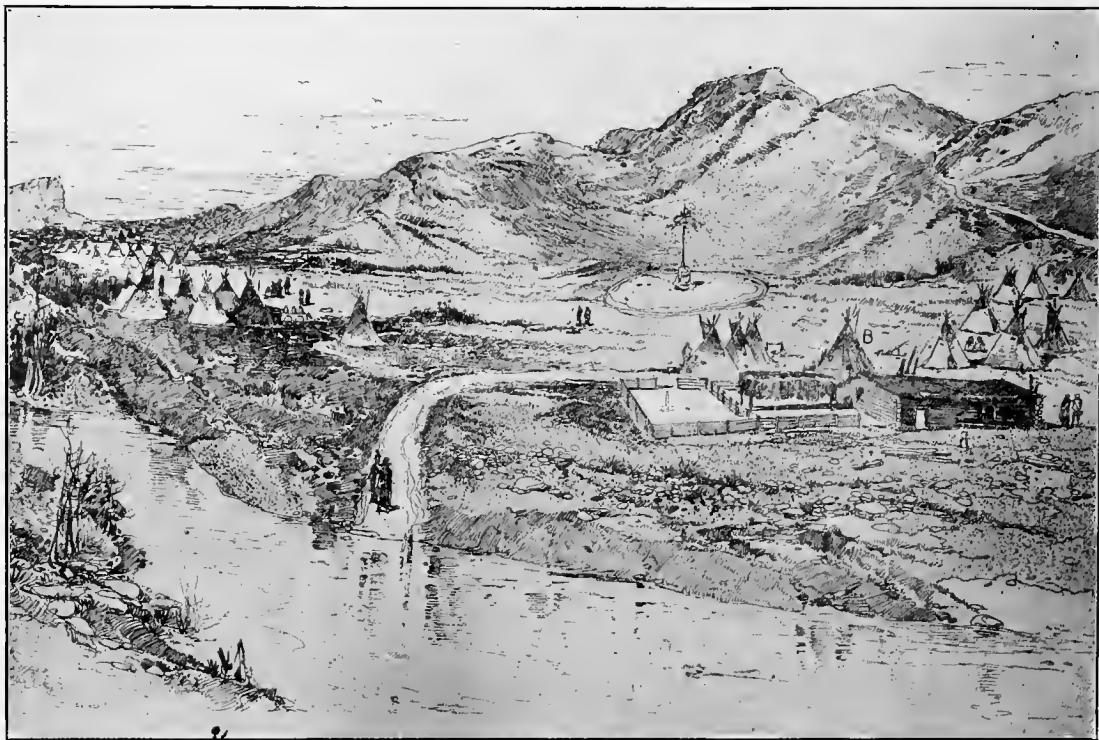
"One week ago (the 8th) the general called me (Shangreau) into his office, and told me he was very desirous of bringing in the hostiles without bloodshed. He said that the mission of Father Jutz had resulted in great good, that the government scouts sent out had failed to reach the camp site of Short Bull and Kicking Bear, and that all information regarding the strength of the hostiles was entirely unreliable."

Louis was given the power to select his party, and accordingly chose some good, true men whom he knew could be depended upon in case of trouble. No white man went with them, for it was believed the hostiles would kill anyone not an Indian who should venture near the camp. From subsequent events this was found to be true.

Bright and early the "friendlies" set out, with several days' provisions and plenty of ammunition. They rode at a good pace, and reached a high point of land about five miles from the hostiles at sundown—they went into camp near a small stream. The fire which they started to prepare coffee was seen by the hostiles, and at sunrise twenty Sioux, armed to the teeth, rode into the friendlies' camping ground, and demanded:

"What do you want here? Have you come to spy on us? Speak quick or we will shoot you."

The scouts did not appear frightened, but advanced without arms to meet the hostiles. Louis assured them that they had come on a mission of peace to hold a great council and talk over matters. He said that his men were not warriors, but talkers. After some parley, the hostiles agreed to escort the band into the Bad Lands camp. So, as soon as the ponies were caught and saddled up, the entire outfit moved toward Short Bull's great fort.



Camp of Sioux Ghost-dancers, Pine Ridge Agency, November, 1890. This Camp Was on Wounded Knee Creek, Near the Battle Ground of December 29. B—Chief "No Water's" Lodge.

CHAPTER VI.

IN THE HOSTILE CAMP.

The country through which they rode presents a similar appearance to a volcanic region. Great fissures yawn on all sides, peaks of gray-colored earth, or a dirty whitish limestone bluff tower here and a precipice extends there. The trees become stunted as one advances, and the grass disappears. Finally all vegetation vanishes, and there remains naught but a series of peaks, of deep valleys, of horrible pits suggestive of the road to the infernal regions! Truly a more fitting place for an Indian massacre could not be found in the United States. Occasionally broader valleys afford a stunted growth of grass for ponies, but these fertile spots are great distances apart and of limited extent. In prehistoric times eruptions of the submerged volcanoes, or shrinkages in the earth's crust, have caused the irregularities which everywhere exist. The scout says that the country affords splendid places for ambuscades—little amphitheaters, as it were, with but one entrance, the sides of which are so irregular as to form good hiding-places for lurking savages. The hostiles' fort can not be approached except through miles of such land.

One mile from the fort the entire party halts, and Short Bull himself advances for a few words regarding Shangreau's mission. The scout says nothing of importance happened until all were within the fort; then he had time to look about, and note particularly the inside and outside of the stronghold.

It is, of course, impossible to photograph it, so Shangreau kindly assists my interpreter in drawing the place.

The camp is placed upon a plateau one hundred and thirty feet above the surrounding valleys. There is only one place where men can enter it, and that place is but twenty feet wide. The peaks tower higher than the little plateau on which lies the fort, but these hills, being perpendicular and terminating in points, afforded no advantage to troops. The road, or shelving-rock layer, leading into the fort is broad at the base, but narrows as one approaches the top, and slopes at an angle of about twenty-one degrees. It would be extremely difficult for soldiers to charge up this shelving rock, and, even did they reach the summit, the breast work thrown across the entrance would effectually check them.

Trenches are everywhere to be seen, and near the entrance exceed ten feet in depth and are very wide.

On the farther side from the entrance there are two places where the hill slopes at an angle of thirty-eight or forty degrees. Of course, it would be out of the question for one to climb up such an incline, but the Indians might slide down safely in case they were compelled to retreat. All other sides of the plateau are perpendicular. Some rifle-pits have been excavated on the hills near at hand, and the Sioux, taking advantage of these, might harass the soldiers should the latter gain access to the camp.

Taken altogether, Shangreau says the fortress is the most impregnable place he ever saw, and in his opinion the two hundred and fifty men who are now in it, and who assert their intention to die there before they will leave it, will be able to kill many hundred soldiers before they are whipped. He claims that the only way properly to assault the spot is by cannon. The Sioux have never fought a command armed with Hotchkiss guns and howitzers, and if cannon can be brought near, so that shells can be thrown into the fort, he thinks the Indians will not be able to hold it.

In corners, or under cover of little caves dug into the banks, are tons of jerked beef. Every warrior has three cartridge belts full of ammunition. They have loading tools by means of which they can reload old shells. There are two good springs of water inside the fort and stunted cedars in a valley a mile distant. In case the fort were surrounded he thinks the wood supply could be cut off and the hostiles brought to terms. They would be able to raid cattle ranches south of their stronghold unless sufficient troops were sent to surround them completely.

Louis gave a very graphic description of the ghost dance as he beheld it executed in the camp.

"When we entered there were about two hundred and sixty-two lodges present. One hundred and seventeen of these remained and one hundred and forty-five returned with us to the agency. The squaws and men came forward to meet us, and all seemed very friendly. They supposed at first that we had come to join them, but when they learned our true mission they seemed very suspicious, and refused for some time to have anything to do with us. Just before we began the council, which lasted the greater part of four days, the high-priest and his helpers came forward and announced that there would be a ghost dance. They formed a circle about the Sacred Tree and began their chant.

"This beat all the wild dancing I saw on Wounded Knee Creek. People went into trances by the dozen, and the priests were kept busy relating the experiences of the fainters. Several remained in trances as long as twelve hours, and gave evidences of utter exhaustion when the directors roused them.

"Short Bull said: 'I see the Messiah coming from

the West. He is riding in a plain wagon drawn by two mules, and looks very much like a black man. If he is our Messiah, we are greatly fooled. Now I see him again and he is an Indian. Ah! wait: I see him the third time, and he is a white man. He tells me to send my children to school, to make large farms, and not to fight any more. Do not fight, my children, unless the soldiers first fire upon you.'

"People were so excited they trembled all over, their eyes rolled, and the muscles of their faces twitched. They were the most crazy Indians I ever beheld."

The dancing continued for nearly thirty hours; then there was an intermission of several hours, during which a council was held in order to give audience to the peace commission.

Short Bull and Two Strike, aided by Crow Dog, championed the cause of the hostiles, while No Neck and Louis Shangreau spoke on behalf of the friendlies. Louis does not remember what he said in the first council, but the substance of his remarks could be put into one sentence:

"The agent will forgive you if you will return now, give you more rations, but not permit you to dance."

Short Bull's (Tatankaptecelan) reply was so forcible as to remain in Louis' memory in the exact words of the speaker.

The speech of Tatankaptecelan ran as follows:

"I have risen to-day to tell you something of importance. You have heard the words of the brothers from the agency camps, and if you have done as myself, you have weighed them carefully. If the Great Father would permit us to continue the dance, would give more rations, and quit taking away portions of the reservation, I would be in favor of returning. But even if you (turning to Louis) say that he will, how can we discern whether you are telling the truth? We have been lied to so many times that we will not believe any words that your agent sends to us. If we return he will take away our guns and ponies, put some of us in jail for stealing cattle and plundering houses. We prefer to stay here and die, if necessary, to loss of liberty. We are free now and have plenty of beef, can dance all the time in obedience to the command of Great Waukantanka. We tell you to return to your agency and say to him that the Dakotas in the Bad Lands are not going to come in."

No Neck rejoined:

"Think, my people, how foolish is this action! Do come in, and all will be well; remain out here, and you will be killed."

Short Bull added:

"It is better to die here as brave men, and in obedience to the commands of the Good Spirit than to live like cowards at the agency on scanty rations, disarmed, without horses and guns. No, we will

not return. If we dance, our Good Spirit will protect us, and when all dancers are sincere, the bullets of the soldiers will harmlessly fall to the ground without power to hurt. There is no army so powerful that it can contend with Waukantanka, therefore we are not afraid to remain here."

The gathering broke up, and nearly every one continued in the ghost dance. For two days the hostiles would not have further words with the friendly scouts. Friday and Saturday, the 12th and 13th, the last council was held. The scenes accompanying the closing of this gathering, Saturday afternoon, were very thrilling, and for a space of two hours it seemed as if a general battle would ensue between those who desired to return to the agency and the hostiles.

About noon, Saturday, Two Strike—who had been one of the leaders in the dance—arose and announced his intention to return to the agency with the scouts, accompanied by about one hundred and forty-five lodges. Crow Dog (Kangi Sunka, the Indian who killed Spotted Tail about ten years ago) also announced his intention of returning. At this declaration from two such prominent men, Short Bull sprang to his feet and cried out angrily:

"At such a time as this we should all stick together like brothers. Do not leave; remain with us. These men from the agency are not telling us the truth; they will conduct you back to the agency and they will place you in jail there. Louis is at the bottom of this affair. I know he is a traitor; kill him, kill him!"

And, running to the place where the guns were stacked, Short Bull grasped his gun, and, followed by many of his young men, surrounded Shangreau. Louis' situation was desperate. He knew these furious men might kill him at the slightest resistance, so he laughed as good-naturedly as possible under the circumstances and told them to put up their guns, as he was their friend instead of their enemy.

"No, do not let the friendlies return," cried the young men; "kill them, or compel them to remain with us. They will tell the agent all they have seen and the soldiers will know how to enter our camp."

With clubbed guns many of the desperate youths rushed upon the friendlies and scouts, others cocked their Winchesters, and for a few moments it looked as if poor Louis and No Neck, Two Strike and Crow Dog, would lose their lives. Crow Dog sat upon the ground and drew his blanket over his head. He told your correspondent afterward that he expected to be struck and killed any moment, and that he did not wish to know the person who should commit the dastardly act—murdering a brother Dakota.

The wiser heads prevailed, however, and after a great hubbub, in which several young men were knocked down, order was restored. One of the horses

and several of the dogs of the friendlies were shot during the melee. When the one hundred and forty-five lodges started from the camp another difficulty arose. It was during this trouble that Crow Dog made his famous short speech:

"I am going back to White Clay (the location of the agency), you can kill me if you want to, now, and prevent my starting. The agent's words are true, and it is better to return than to stay here. I am not afraid to die."

Imagine the surprise of the friendlies when, upon looking back from the top of a ridge two miles distant, they saw the one hundred and seventeen lodges of hostiles coming after them. They halted to wait for Short Bull to catch up, and then the entire outfit moved toward the agency, all happy in the prospect of peace and forgiveness.

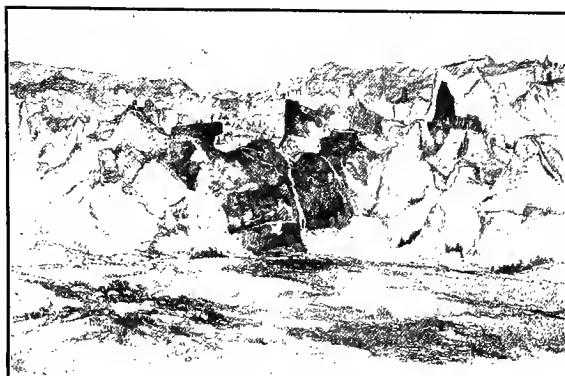
But the hopes of the friendlies were short-lived, for Short Bull became scared after having proceeded four miles farther, and, together with his band, left the rear of the column and returned to the Bad Lands.

Sunday and Monday morning, the Indians moved along the trail, reaching Red Cloud's camp, in sight of the agency headquarters, just before noon, Monday. Louis and the scouts had ridden ahead and reached the general's presence as previously narrated in this article.

Kicking Bear is one of the prominent Indians now in the Bad Lands. Having been associated with Crazy Horse and Sitting Bull in the Custer massacre, he is thought to be very brave. He announces his intention of killing all the soldiers who attempt to run up the shelving-rock layer leading to the fortification. Crow Dog believes that Kicking Bear is even a more dangerous antagonist than Short Bull, for Bear has proven bravery upon several occasions, while Short Bull is a good deal of a braggart.

The killing of Sitting Bull and several of his followers seems to have had no effect upon the Indians here. Many of those who were upon the warpath with that noted medicine man (he was not a warrior) are now dead, and, on account of petty jealousies, numbers of his former supporters deserted him, so his death has not caused the excitement that the shooting of the young man by the cowboys has. What effect his death had upon the Rosebud or Standing Rock Agencies, I am unable to say, both those points being far removed from this place, but it is probable that his death would somewhat excite the Indians of his village.

Crow Dog and Two Strike are both rather reticent. They have been with the hostiles for three weeks, it must be remembered, and have not yet overcome the feelings of fear that they would naturally experience when surrounded by so many troops. When some of the officers rode over to-day and welcomed the in-



Camp of the Hostiles in the Bad Lands Near White River, North of Pine Ridge.

coming Sioux, nearly all the "braves" crowded around and shook hands, and I noticed very few sulking in the background. This would indicate a prevailing good feeling toward the whites, and a desire to be at peace. A large white flag is floating over their camp at the present moment. The two hundred and fifty men in the fort in the Bad Lands seem determined to die rather than return.

There is not a little uneasiness on the part of people at the agency. When the cavalry is removed there will be no troops but a few hundred of the infantry left to guard the commissary supplies, the buildings, and the friendlies. We have within two miles of the general's house, seven hundred and ninety-three tepees, representing three thousand nine hundred and sixty-five persons, or one thousand and fifty men capable of bearing arms. A success on the part of the hostiles might excite many of these friendlies, so think the more timid whites. But the "old-timers" and agency employees do not anticipate any trouble at the post.

These friendlies are unhappy here, away from their homes.

The wife of a chief said to me:

"Look about you, young man! You see a much-patched lodge. There are holes in every strip of canvas on the poles, through which the chilly blast penetrates. Our little fire is not large enough to keep the children warm, and, were it made greater, the smoke would be so dense we could scarcely remain inside. We can not haul much wood in our wagons, for the distance to the bluffs where the pines grow is eight miles, and our horses are not strong."

"Oh! why are we kept here? The hostiles should be made to suffer, not us. They caused all this trouble. Why do the innocent suffer while the guilty go unpunished?"

CHAPTER VII.

THE GHOST DANCE.

When the Ghost or Messiah Dance was first given on Pine Ridge Reservation by the Sioux who had been in Utah on a visit to the Ute Indians, there were many on-lookers. These became interested as the dance proceeded, for such was its influence on a beholder that he felt an irresistible desire to join the circle.

The largest of the dancers' camps prior to the departure for the north was located upon Wounded Knee Creek. Other camps of considerable extent existed upon White Clay Creek, four miles from the agency headquarters, upon Porcupine and Medicine Root streams. The cut on page 19 illustrates one of the dances. On this spot nearly five hundred persons were leaping up and down in the dance, or rolling upon the earth, at one time, in an enormous circle. The earth is packed as firm as a cemented cellar bottom, so rendered by the hundreds of feet that stamped furiously upon the surface, and for a space of two hundred feet in diameter there is not a vestige of grass, nor the indication of the smallest shrub.

When the medicine men took the Ghost Dance under their charge one man was appointed "High Priest," to have entire control of the ceremonies. His four assistants were likewise invested with power to start or stop the dance at will. They were given authority to punish any person who should refuse to obey their commands.

While the priests are employed in their prayers, the squaws make a good-sized sweat-house. Poles are stuck in the ground with the tops bent together and securely tied. These saplings are strong enough to bear the weight of several hundred pounds. Over the frame work are heaped blankets and robes to such a thickness that no smoke or steam can pass from the interior. A fire is started in a hole in the ground several feet from the small entrance to the sweat-lodge, and twenty or thirty good-sized stones are placed therein to be heated.

When these rocks have become sufficiently hot, the young men who are to partake of the bath strip, with the exception of the breech-clout, and crawl through the door. They seat themselves in a circle, with their feet toward the center and their backs against the sides of the lodge.

The attendant shoves some of the hot stones inside, and the young men pour water from a hide-bucket upon the little stone heap. Steam and vapor arise, completely filling the enclosure. The attendant has meanwhile covered the opening so that no air from the outside may penetrate. As the vapor condenses, the attendant thrusts more stones within, and thus

the operation is continued as long as the youths can stand the confinement.

The pipe is also smoked during the sweat. When the young men issue from their bath the perspiration is fairly streaming from every pore. If it is not cold weather they plunge into a pool in the creek near by, but if it be chilly they wrap blankets about their bodies. None of the whites and half-breeds who have witnessed these things ever saw a Sioux rub himself after issuing from the bath.

Several sweat-houses are erected in order to prepare the young men for the dance. When a good number of young men, say fifty or sixty, have thus prepared themselves, the high-priest and his assistants come forward. The high priest wears eagle feathers in his hair, and a short skirt reaches from his waist nearly to his knees. The assistants are dressed in a similar manner, but wear no ornaments other than the eagle feathers. The dancers wear no ornaments whatever and enter the circle without their blankets, many of them only wearing their ordinary clothes.

That Indians should lay aside all ornaments and finery and dance without the trappings which they so dearly love proves conclusively that some powerful religious influence is at work. In their other dances, feathers and bangles, weapons, herbs, or painted and plaited grasses, porcupine quills, horses' tails and bits of fir-skins, necklaces, bells, silver disks, etc., are worn in great profusion.

The candidates for the dance do not fast, as has been stated by several writers who have not thoroughly investigated this subject. After they have come forth from the sweat-house they are ready to enter the sacred circle. The high priest runs quickly from the village to the open space of ground, five or six hundred yards distant, and stationing himself near the sacred tree, begins his chant as follows:

"Hear, hear, all you persons!

"Come, hurry up and dance, and when you have finished running in the circle, tell these people what you have seen in the spirit land.

"I myself have been in the spirit land and have seen many strange and beautiful things, all of which great Wakantanka rules over and which my eyes tell me are good and true."

As the speaker proceeds, the men and women leave their tepees and crowd to the dance-ground. They form two or three circles, according to the number of persons who wish to participate, and, grasping hands with fingers interlocked ("Indian grip"), the circles begin to move around toward the left. They rub their palms in dust or sand to prevent slipping, for it is considered unlucky for one to break connections.

The sacred tree needs a few words of explanation. It is a nearly straight sapling thirty or forty feet high, trimmed of branches to a height of several

feet. To the topmost twig is attached a small white flag or canvas strip, supposed to be an emblem of purity, together with some colored streamers. The base of the tree is wrapped with rushes and flags to a thickness of about five feet. Between the reeds the dancers from time to time thrust little gifts of peace offerings. These offerings are supposed to allay the anger of the Great Spirit, and are given in perfectly good faith by the poor natives. They consist of small pieces of calico, bags of tobacco, or pipes. During the heat of excitement, those worshippers most deeply affected cut the flesh on their arm.

Henry Hunter (The Weasel, "Itonkasan") informs me that after the dance had been running some days, the rushes covering the base of the tree were in spots, besmeared with human blood.

As the circle moves toward the left, the priest and his assistants cry out loudly for the dancers to stop a moment. As they pause he raises his hands toward the west, and, upon all the people acting similarly, begins the following remarkable prayer:

"Great Spirit, look at us now. Grandfather and grandmother have come. All these good people are going to see Wakantanka, but they will be brought safely back to earth. Everything that is good you will see there, and you can have these things by going there. All things that you hear there will be holy and true, and when you return you can tell your friends how spiritual it is."

As he prays, the dancers cry aloud with all the fervor of religious fanatics. They moan and sob, many of them exclaiming: "Great Father, I want you to have pity upon me."

One can scarcely imagine the terrible earnestness of these people. Bartlett and Mr. Sweeny, one of the agency school teachers, the chief herder, Mr. John Darr, and others, have informed me that during their extended experience on the agency, of many years' duration, they have witnessed many of these dances. They describe the scene of the dance, especially at night, as most weird and ghostlike. The fires are very large, and shed a bright reflection all around. The breasts of the worshippers heave with emotion, they groan and cry as if they were suffering great agony, and as the priests beg them to ask great Wakantanka to forgive their sins, such a cry of despair and anguish arises as to deeply affect even the whites present. Bartlett said that, in his opinion, men could not be more in dead earnest nor pray harder than did these poor children of the plains.

After prayer and weeping, and offerings have been made to the sacred pole, the dance is started again. The dancers go rather slowly at first, and as the priests in the center begin to shout and leap about, the dancers partake of the enthusiasm. Instead of



The Ghost Dance.

moving with a regular step, each person jumps backward and forward, up and down, as hard as he or she can without relinquishing their hold upon their neighbor's hand. One by one the dancers fall out of the ranks, some staggering like drunken men, others wildly rushing here and there almost bereft of reason. Many fall upon the earth to writhe about as if possessed of demons, while blinded women throw their clothes over their heads and run through brush or against trees. The priests are kept busy waving eagle feathers in the faces of the most violent worshippers. The feather is considered sacred, and its use, together with the mesmeric glance and motion of the priest, soon causes the victim to fall into a trance or deep sleep. Whether this sleep is real or feigned the writer does not pretend to say, but sufficiently deep is it that whites visiting the dance have been unable to rouse the sleepers by jest or blow.

Unquestionably the priests exercise an influence over the more susceptible of the dancers akin to hypnotism.

One of the young men who danced in the ghost circle twenty times, told me that the priest, "Looked very hard at us. Some of the young men and women could not withstand his steady gaze, and did whatever he told them."

CHAPTER VIII.

GHOST DANCE VISIONS.

Regarding what is seen by the converts when in the spirit land there is much speculation. I have secured interviews with three prominent chiefs touching upon this matter, and before relating what they told me I wish to call especial attention to the strong resemblance of their visions to the teachings of the Savior in the New Testament.

Little Wound said: "When I fell in the trance a

great and grand eagle came and carried me over a great hill, where there was a village such as we used to have before the whites came into the country. The tepees were all of buffalo hides, and we made use of the bow and arrow, there being nothing of white man's manufacture in the beautiful land. Nor were any whites permitted to live there. The broad and fertile lands stretched in every direction, and were most pleasing to my eyes.

"I was taken into the presence of the great Messiah, and he spoke to me these words:

"My child, I am glad to see you. Do you want to see your children and relations who are dead?"

"I replied: 'Yes, I would like to see my relations who have been dead a long time.' The God then called my friends to come up to where I was. They appeared, riding the finest horses I ever saw, dressed in superb and most brilliant garments, and seeming very happy. As they approached, I recognized the playmates of my childhood, and I ran forward to embrace them while the tears of joy ran down my cheeks.

"We all went together to another village, where there were very large lodges of buffalo hide, and there held a long talk with the great Wakantanka. Then he had some squaws prepare us a meal of many herbs, meat, and wild fruits and 'wasna' (pounded beef and choke-cherries). After we had eaten, the Great Spirit prayed for our people upon the earth, and then we all took a smoke out of a fine pipe ornamented with the most beautiful feathers and porcupine quills. Then we left the village and looked into a great valley where there were thousands of buffalo, deer, and elk feeding.

"After seeing the valley, we returned to the village, the Great Spirit speaking meanwhile. He told me that the earth was now bad and worn out; that we needed a new dwelling-place where the rascally whites could not disturb us. He further instructed me to return to my people, the Sioux, and say to them that if they would be constant in the dance and pay no attention to the whites he would shortly come to their aid. If the high priests would make for the dancers medicine-shirts and pray over them, no harm could come to the wearer; that the bullets of any whites that desired to stop the Messiah dance would fall to the ground without doing anyone harm, and the person firing such shots would drop dead. He said that he had prepared a hole in the ground filled with hot water and fire for the reception of all white men and non-believers. With these parting words I was commanded to return to earth."

The Weasel said: "While dancing I saw no visions, but the other Indians told me to not think of anything in particular, but keep my eyes fastened upon the priests, and soon I would see all that they saw."



"Bear-Comes-Back-and-Lies-Down," a Prominent Ghost Dancer of Pine Ridge.

"The first large dance held was on Wounded Knee Creek under the guidance of Big Road. We had been dancing irregularly for several weeks when a runner came into camp greatly excited one night, and said that the soldiers had arrived at Pine Ridge and were sent by the Great Father at Washington. The priests called upon the young men at this juncture not to become angry but to continue the dance, but have horses ready so that all could flee were the military to charge the village. So we mounted our ponies and rode around the hills all night singing our ghost songs. Never before in the history of the 'Dakotas' has a dance like this been known. We did not carry our guns nor any weapon, but trusted to the Great Spirit to destroy the soldiers."

The favorite song among the Sioux has since been "harmonized" by eastern musicians. It is a peculiar and plaintive melody. Mr. James Mooney published in 1896 his famous work, "The Ghost Dance Religion." It was issued by the Bureau of American Ethnology as Volume II of the Fourteenth Annual Report. Mooney was not at Pine Ridge during the troubles, although he was there subsequently. This is unfortunate as he might have visited the great dance at No Water's camp and obtained for ethnolo-

gists some valuable data. My own notes are imperfect, and in my rendition of the ghost dance songs I made several errors natural to one not an ethnologist. However, all the publications treating of the dance were subsequent to mine.

I take from Mooney's report the "first" song as in my original there are two words incorrectly given:

"Ina' he'kuwo'

Ina' he'kuwo'; ina' he'kuwo'.

Misu'nkala che'yaya oma'ni-ye,

Misu'nkala che'yaya oma'ni-ye.

I'na he'kuwo'; i'na he'kuwo'.

"Translation:

"Mother, come home; mother, come home.

My little brother goes about always crying,

My little brother goes about always crying.

Mother, come home; mother, come home."

Mooney says:

"This touching song was a favorite among the Sioux. It was composed by a young woman who saw her dead mother in the other world, and on waking out of her trance vision implored the mother to come back to them again, as her little brother is forever crying after her."

Another chant is:

This the father said,

He brings the pipe for you,

And you shall live.

This the father said,

This the father said.



Music of the Second Ghost-dance Song.

The second song expresses in brief the goodness of the father. Some one of the dancers has come to life from the trance, and has just related his or her experience in the other world. The Messiah, or father, has been very near to the subject, and the high priest, enlarging upon the importance of this fact, runs about the interior of the circle handing several pipes around, exclaiming that these pipes were received direct from the Great Spirit, and that all who smoke them will live.

The people are worked up to such a pitch of religious frenzy that their minds are now willing to receive any utterance as truth undisputable, so they pass around the pipes, singing the song meanwhile. The repetition of the words, "This the father said," gives more weight to the song.

Just after the dancers have been crying and moan-



Sitting Bull. Killed December, 1890.

ing about their sins the priests strike up the first song, in which all join, singing with deafening loudness. Some man or woman may be at this moment at the tree, with his or her arms thrown about the rushes, sobbing as if the heart would break; or another may be walking and crying, wringing his hands or going through some motion to indicate the deepest sorrow for his transgressions. So the singer cries aloud to his mother to be present and aid him. The appeal to the father refers, of course, to the Messiah, and its use in this connection is supposed to give emphasis to the demand for the mother's presence and hasten her coming.

Mooney presents a dozen of songs or chants, all of which are more or less pathetic.

That Indians inspired by the motives expressed in such hymns—for they are manifestly religious—contemplate "the war path," as claimed by the authorities, is a sufficient comment on the intelligence of our Indian bureau of 1890.

One of the visions seen by a young woman, when under the influence of the trance, varied somewhat from the others. She told the following story concerning what she saw:

"I was carried into the beautiful land as others have been, and there I saw a small but well-made lodge constructed entirely of rushes and reeds. These were woven closely together and resembled the fine basket work that squaws of other tribes make during the winter. The tepee was provided with a stone wall, which was composed of small, flat stones laid up against the walls to the height of three or four feet. In this lodge the great Wakantanka dwelt and would issue forth at noon. Promptly at the time when the sun was above me the lodge trembled violently and then began its descent toward the earth. It landed near the dance ground, and there stepped forth a man clothed in a blanket of rabbit sides. This was the Messiah, and he had come to save us."

The vision of Little Horse is still more remarkable. Through the Weasel he said:

"Two holy eagles transported me to the Happy Hunting Grounds. They showed me the Great Messiah there, and as I looked upon his fair countenance I wept, for there were nail prints in his hands and feet where the cruel whites had once fastened him to a large cross. There was a small wound in his side also, but as he kept himself covered with a beautiful mantle of feathers this could only be seen when he shifted his blanket. He insisted that we continue the dance, and promised me that no whites should enter his city nor partake of the good things he had prepared for the Indians. The earth, he said, was now worn out and it should be repopulated.

"He had a long beard and long hair and was the most handsome man I ever looked upon."

Before concluding my description of the dance as it appeared during the first few months of its existence at Pine Ridge, I would like to add that the dances were held throughout the day usually, but that once in a while, when a village was especially devout, they were continued all night. In that event food was prepared in large quantities, so that the worshipers could partake of refreshments when they desired.

The high priest frequently announces in a loud tone the visions related to him by the converts. His discourse is often interrupted by loud grunts of approval on the part of the assembled natives.

I asked the Weasel: "Did you ever see the medicine shirt worn?"

"Yes, they wore blessed shirts that night. The priests had said prayers over these garments, and they were bulletproof. One girl tried to gash herself with a butcher knife on the arm, but the blade was bent and the edge turned, so powerful was the medicine in the shirt."

CHAPTER IX.

WHERE THE BLAME LAY.

In concluding my remarks upon this "early aspect of the dance," I wish emphatically to say that, by careful research both among Indians and whites here, I do not hesitate to lay the blame for the present condition of affairs upon the shoulders of those persons responsible for reducing the food supply. Furthermore, the failure to keep promises made the Sioux by the last commission has had a bad effect.

Had the agency employees and their head acted in concert, and asserted the authority given them by the Commissioner of Indian Affairs, the whole matter could have been settled without great trouble. Philanthropists, while meaning well, from a lack of knowledge of the nature of an Indian, treat him in such a sympathetic manner—often selecting the most worthless and lazy Indians to bestow their favors upon—that he becomes puffed up with his own importance. Egotism leads to insolence, and insolence gets him into serious trouble with the agency employees and Westerners in general. The Catholics, Episcopalians, and Presbyterians are all doing a good work, and they are to be commended. But it is unfortunate that they sometimes pull in opposite directions. (Since 1890 they have labored for the common cause, so I am informed.)

The Indian can not understand how so many beliefs can spring from one good book, and, naturally suspicious, when he hears one missionary speak disparagingly of the salvation afforded by a rival church, concludes the whole set are for the whites first, the Indians afterward.

When the commission visited the agency in the summer of 1889, for the purpose of securing signatures to the treaty whereby the Sioux relinquished claim to several million acres of their land, a number of promises were made by the commissioners which were never kept. The gentlemen, returning to Washington, engrossed with the many political cares and social pleasures of the capital city, soon forgot the sacred promises assured to the Sioux. Not so with the Indians themselves. As they sat about their tepee fires and discussed the affairs of their nation, they often wondered why the increase in rations did not come, why the presents were so long delayed.

An Indian never forgets a promise.

Can it be wondered, then, that the Sioux lost what little remaining faith they had in the whites?

After the departure of the commissioners for the East, the Sioux waited patiently for thirty-four weeks in the vain hope of receiving more rations and the fulfillment of the commission's promise. Then a great council was held, and Agent Galagher was appealed to. The agent went to Washington, and consulted with such officials as he could find at their post of

duty. He insisted that the million pounds of beef withdrawn from the yearly annuities should be returned or he would not be responsible for the actions of the Indians under his charge. He claimed that the Indians were suffering from a lack of sufficient food, and knew of a certainty that several children had died from starvation. Mr. Galagher carried out to the letter his promises to his people, and then hastened back to Pine Ridge. He may have been in fault afterward, but, even allowing this, we must give him due credit for his manly efforts in behalf of the suffering Sioux.

How did the Commissioner of Indian Affairs receive the agent's report? Did he endeavor to have the million pounds of beef re-entered in the annuities? By no means. He concluded the reports of Mr. Galagher were somewhat exaggerated, and gave the matter no further thought.

The winter of 1889 set in, and still there was no evidence that the promises would be fulfilled. Fortunately it was a mild winter; the Sioux did not suffer more than during the summer.

Mr. Sweeny, one of the school teachers upon Medicine Root Creek, told me that the children under his instruction brought their dinners in little beaded sacks. Out of curiosity he opened several of these "lunch baskets," and examined their contents. No bread, cake, pie nor vegetable was found in any of those examined. He told me further that the children would get very hungry on the colder days, and during recess would dig out chipmunks and prairie dogs, which they cooked and ate without seasoning.

The teacher fed many of the hungry little ones at his own home, using a considerable part of his slender salary in this charitable work.

The report of Agent Galagher, submitted to the Indian Bureau upon his resignation in favor of Agent Royer, showed a number of cattle smaller by one-third than was reported by Dr. McGillicuddy. It had taken the Sioux ten or twelve years to accumulate the herds of horses and cattle which the documents show were ranging upon the reservation in the summer of 1889. What has become of the five thousand missing steers? Did thieves steal them? The deputy marshals say they have not arrested more than forty cattle thieves upon the reserve during the past two years, and these offenders never secured more than one or two head before capture. Is it probable the Sioux would deliberately kill the herds of which they were so proud, unless forced to do so by hunger? When the rations were reduced one million pounds they asked that a discrimination be made between summer and winter weight of steers. They said: "If you give us four hundred steers every other Wednesday during the summer, and list them as weighing twelve hundred pounds each, you should



*George E. Bartlett, Interpreter, Called by
the Sioux Huste.*

list the same number during the winter as weighing nine hundred pounds each. Your cattle are not stable-fed; they range about in the winter snows searching for grass. They find but a small quantity, therefore they can not fatten, but, on the contrary, grow poor. The shrinkage is not in bone and sinew, but in the most tender portions. Write to the Great Father and say we can not live upon the few cattle he gives us."

The Great Father, of course, took no notice of this request, and the Indians were compelled to slaughter their own herds. One by one the cattle disappeared, until at last but few remained upon the Government ranges. The agent, seeing the work of years vanishing in weeks, made another frantic appeal to Washington. But his letter was pigeon-holed along with those of other agents. The authorities could not understand why Indians should suffer. Did they not fare sumptuously every day at the expense of a rich and generous government? Why, then, should they harass the Commissioner by frequent appeals for aid? It was evident that all the Indians were liars seeking to defraud a government which had already been entirely too liberal. And so the Bureau did nothing, and the Sioux continued to kill their cattle.

The spring of 1890 dawned. Anxious to reach a country where game could be obtained, about two hundred of the most dissatisfied Sioux left for a trip through the mountains in Montana and Wyoming. From there they expected to visit the Crows and Utes

in Utah. It was while they were relating their troubles to the Crows that the good preacher Johnson appeared, and, taking advantage of the trouble which weighed upon the guests of the Utes, told them the old, old story of the true Messiah. As a drowning man grasps at everything within reach to save himself, so the desperate Sioux seized upon this new doctrine as a sure escape from their troubles.

CHAPTER X.

THE FAILURE OF THE INDIAN'S MESSIAH.

The news that the hunting party had returned several months sooner than was expected spread quickly through the villages. Runners announced that a great council would be held upon Wounded Knee Creek, in which an old man would deliver a special message from Great Wakantanka to the Sioux nation, and requested all men and women interested in the welfare of the nation to be present. The meeting was held at night upon a spot of ground near No Water's camp. Probably four or five hundred men and six hundred women were present. Two Lance, the old man selected to speak, rose slowly to his feet, advanced to a point near the great bonfire around which the people were seated in several circles, and spoke the following words:

"Brothers, if you listen to my words attentively you will profit thereby. We have returned from the country of the Utes bringing good news for the Dakotas. Many, many winters ago the Great Spirit sent His Son upon the earth to teach men to do right—to be good. Instead of listening to the words of the holy Visitor, the wicked white men killed Him. He has appeared to a good and righteous man in the land of the Utes, and told him that he would soon come upon earth again; but this time for the salvation of the Indians, and not the whites. The whites are to be overwhelmed, so the Messiah said, by a great earthquake or storm. In the terrible convulsion of the earth, all Indians who are not prepared to welcome their Lord will meet with the same fate as the whites. Therefore, O my people, I exhort, nay, command you to do all that the good man says, in order that you may not suffer the death of our despised enemies.

"The holy Teacher further says that the overpowering of those who have oppressed us is not to be accomplished by force of arms, that no weapons are to be used. We are simply to pray and trust in the Messiah, and dance as he shall command. This is to us a very strange doctrine, as you will admit. We have been accustomed to fight, not to pray. Therefore we must be all the more careful to obey every command of the new Saviour, or we will displease Him.

"Listen! urge upon you to watch very carefully every motion of the dance which we are about to execute for you, and, when you have learned the songs and the movements, join in with us. Be repentant for your sins, pray the Great Wakantanka to look down upon you in pity, to give you food and clothing. Be sincere, be earnest, and He will hear our prayers."

In a few days the whole nation was infatuated with the new craze. They danced, and prayed, and pleaded with such earnestness as can scarcely be imagined. But their God heard not. He saw not their gifts thrust into the matting about the sacred tree.

He regarded no song of appeal for aid. He heeded not the tears nor the sobs of anguish for sin.

In their affliction they turned their gaze to the stars, to the moon above, during the long and weary hours of the night dance. The heavenly bodies seemed to look down with pity and compassion upon the supplicating throng beneath, but their cries met no response.

On and on they danced, dragging weary limbs about the circle, hoping, trusting that He who lived beyond the stars would take pity upon them. The hoot of the owls in the great cotton-wood trees, or the yelp of the coyote upon the plain, mocked the sanctity of the song, and these sounds were the only answers to their pleadings.

As time passed and the Messiah failed to appear, there came a change in the minds of the worshippers. Some of the more skeptical advocated a cessation of the ceremonies, but they encountered the most bitter denunciation on the part of those still firm in the faith. The trouble between the two factions reached its height during Agent Galagher's visit to No Water's camp upon Wounded Knee Creek. Those who had lost faith in the Messiah attempted to dissuade the others from driving the agent back to Pine Ridge; but the latter were strongest and carried the day, compelling Mr. Galagher to return to the agency more hastily than he set out.

A few weeks afterward Dr. Royer entered upon his duties at Pine Ridge. With the new administration came an order to all Indians not believers in the new Messiah to locate near the agency. The Indian police were kept very busy for several weeks notifying the distant camps of this command, and assistant those who were unable to travel. Early in November all the anti-Messiahists were encamped near the agency, under the surveillance of the military. The converts to the new doctrine encamped on several creeks twenty miles from the agency until the middle of November, and then, becoming alarmed at the presence of so many troops, fled into the Bad Lands.

For two miles in every direction around the agency

are the tepees of the friendlies. Ten years ago nearly all the Sioux were living in hide or canvas lodges. Now the most of them live in good, substantial houses, many of which are decorated with pictures and ornaments. Every Dakota owns a tepee, but uses it only during summer hunting excursions. The youngest children were born in log houses, and even the older persons are so accustomed to a good dwelling that they feel ill at ease in a canvas lodge. Consider, therefore, the sufferings of these people, crowded together in frail tents, with insufficient clothing, with no fuel to be had nearer than the timber-covered bluffs eight miles away, and the half-starved ponies able to haul but small quantities of this.

They have pleaded in vain with the agent to allow them to return to their log houses. The children are sick with colds, many have diphtheria, and several have died. Fortune smiled upon them by giving a month of the most beautiful weather in the fall, but fearful storms have since swept down upon them with scarcely an hour's warning. Blizzards may spring up inside of thirty minutes; the thermometer has been known to fall fifty-eight degrees inside of an hour upon the reservation. Even the most stoical man must be moved when he contemplates the terrible suffering, not to mention the loss of life and property, that must needs accompany a Dakota storm.

The anti-Messiahists are perfectly aware of the danger that threatens them. Not long ago the wife of one of the greatest chiefs said to me:

"Why are we detained here? My husband, my brother, my cousin are not going to join the dancers in the Bad Lands. There is not a family in this large camp (of one hundred and ninety-five tepees) that does not watch over at least one sick child. The coughing and crying of poor distressed babies keeps us all awake at night. It is two miles from here to the Government buildings, and, should a great blizzard swoop down upon us, many women and children would perish before the men could get us into the Great Father's warm houses."

I conclude the ghost dance observations with American Horse's statement made some years ago. It covers the present situation admirably.

"It has been two years since this trouble started. General Crook and two commissioners came up here to make a treaty for our land. Red Cloud objected to selling. I was in favor of selling, or doing anything the Great Father wanted. Then they called us all in to the agency and kept us there for seven days. When we got back our stock and everything about our houses was gone. Then our rations were cut down. From that day our people have been divided. Some were so excited they could hardly be controlled. I labored to keep them all together and



A Belle Among the Married Women.

to have them do as the white man wanted. When our rations were cut down, some of our people died. They had nothing to support life. The medicine was powerless. It was like the seed of our land—very poor. And the doctor was no better than our old women. Of course, we blame much of this on the agents, for many of them have been bad. We complained, but it did not avail us. Thus it was many became so discouraged that they were easily led away by bad men. I say again, and will say it to the Great Father, that my people were nearly starved these last two years or more. And we were not clothed. Look at us. We are like men pulled out of the ditch—nothing but rags to cover us. They send us books, and give us good advice, but paper and wind will not keep life together. If the people of the East heard the way we were treated they would refuse to believe it. The agent may cause a good deal of this, but why does the Government fail to keep the treaties? It is cold weather, and yet our winter clothing has not come."

As they brooded over their wrongs, the scarcity of rations, and the miserable treatment of Red Cloud, the Messiah craze came. Imagine with what joy they hailed the coming of Him who was to save and rescue them. How they hoped and prayed, only to be deluded and again cast into the depth of despair! Even this last boon and comfort was refused by their conquerors; for no sooner had the news of the coming Saviour reached the ears of the Great Father at Washington than he ordered his soldiers to the frontier to suppress the worship of any Indian who should dare to pray to his God after the dictates of his own conscience!

CHAPTER XI.

IN WASHINGTON AGAIN.

For a time I shall depart from the diary entries and write in the light of subsequent developments.

The battle of Wounded Knee occurred December 29, eleven miles from Pine Ridge. It has been fully described by Mooney in his Ghost Dance Religion (Annual Report, Bureau of Am. Ethnology) and students are referred to his excellent narrative. By means of newspapers and magazine articles laymen know more or less regarding this climax of affairs at Pine Ridge.

The day before the battle word came to the agency that the troops had surrounded a body of Indians and were bringing them in. This news produced little excitement, for we had all had rumors and reports until we either ceased to believe or became indifferent. As my relations with the Indians had been intimate, I was not unprepared for the news of serious trouble. It is no more just in passing to say that the other correspondents sat about the "hotel" or spent their time in the company of the officers, or took recreation by riding out a mile or two to the hills overlooking the agency. It is amusing to read in these later days of Mr. So and So who was at Pine Ridge during the troubles, etc.—as if Mr. So and So had passed through a campaign equal to the civil war. There was no particular danger at any time at Pine Ridge and there were ten soldiers for every Indian present on the day of the battle of Wounded Knee. I can not refrain from remarking further that I was the only person present not an official who employed an interpreter and photographer. The artists did not come until after the battle of Wounded Knee.

The day previously mentioned, Saturday, December 28, I shall always remember. I sat in the saddler's shop talking to the photographer when an orderly rode up and informed me that Major Brooke (now General Brooke) desired my presence at his quarters. Proceeding to the Major's office I was informed by that individual that I must leave the

agency. He said he would not place me under arrest if I got out at once. His grounds for this action were as follows:

That I had been very active among the Indians and camps near the agency, going about with my interpreter, listening to their stories, sympathizing with them, etc.; that I had expressed myself strenuously in conversation with the officers and civilians about the agency, that he understood that I had sent articles denouncing the treatment of the Indians, etc., to an influential publication in the East. All this tended to ferment trouble. As many of the younger Indians understood English they would communicate my view to the dissatisfied element, and they, in turn, would believe that many people in the East were upholding them in their contentions. So the Major ordered me to go over to the railroad where he would have no jurisdiction over my actions.

He was not offensive. He was acting, he said, for the best interest for all concerned. One of the traders was sending a team to Rushville in one or two hours and I could go with him, so the Major said. If I needed any assistance in packing my effects, he would send two men to my quarters.

I thanked the Major for his offer but assured him that it was unnecessary, that I would be ready in time to go over with the clerk. I told Major Brooke that I was very sorry to leave Pine Ridge; that my work there was not completed. I had done nothing of which I was ashamed. On the contrary I had simply told the truth about the state of affairs and the cause which culminated in the ghost dance. The other observers that catered to the military and had given the Indians scant justice, had not studied the situation at all. With this the interview ended and I marched over to the "hotel," paid by bill, found interpreter Bartlett and with his assistance packed up my belongings, while the photographer put up the negatives and drawings. I suppose the officers had heard of my departure for when I drove out of Pine Ridge, one or two of them shook hands with me and a gentleman (whose name and rank I do not know now and whose card I have unfortunately lost) told me that personally he entirely agreed with me on these questions and he thought that some other officers did, but there was a difference between personal and official attitude.

So we drove away from Pine Ridge. Two horsemen also took the road, but kept about a quarter of a mile to the rear. They were both soldiers. When we were some five miles from Pine Ridge they turned their horses and rode back to the agency.

At Rushville I did not remain more than two or three days. During that time news was brought to me by Bartlett and one or two Indians who spoke

English, but this information was not satisfactory as that obtained during the residence at the agency, so I left for the East and reported to Mr. Minton of The Illustrated American. He published all the manuscript I had sent him, and also one entitled "Indian Women," which I omit from the columns of The Inventor.

The American issued an appeal to Congress, the upshot of which was for the Department of the Interior to conduct Indian affairs in such a manner that a repetition of the Pine Ridge tragedy would be impossible, or to give control of all agencies to the War Department.

In January I spent a number of days interviewing prominent men in behalf of the Indians, and circulated numerous copies of the petition according to Mr. Minton's orders. A copy of the petition was mailed to members of both the House and the Senate and also to prominent officials and public men. The newspapers of the country commented upon the attitude of the magazine and referred to my narrative on the wrongs perpetrated upon the Indians. Some praised us, others heaped maledictions on our heads and others gave the whole affair a political tone. The work in Washington was far from pleasant and I was glad when it was over. Heaven deliver me from assuming the role of a lobbyist again. It is only necessary to quote one conversation from the diary of January 13:

"What," shrieked Commissioner Morgan, "Write myself down an ass! Sign a petition heralding to the world that the Bureau is guilty of fraud and incompetency?

"Not much!"

Mr. Minton wished me to travel through Mexico for his magazine, but I did not care to leave the United States at that time.

It must not be thought that life at Pine Ridge had not its bright side. Indeed, many incidents occurred to enliven the seriousness of the situation. Two of these are worthy of note here.

The photographer brought with him several large bottles of acids to be used in developing the negatives he took. One quart bottle contained a fluid similar in color to the cheap whiskey sold near the reservation.

One day George (who sang ghost dance songs for me and assisted the interpreter) came into our headquarters. Spying the flask he cried: "Give me minnewakan."

"No, no," I replied, "it's bad, it's poison." I was seated in a corner far off reading, and before I could spring from my chair he had seized the flask and raised it to his lips.

One swallow, a strangling sound, the jingling of broken glass as he dashed the bottle on the floor, and he ran out of the door yelling and coughing. We



Guard Admitting Women to Draw Rations, Pine Ridge. Typical Indian Woman.

were convulsed with laughter for it was very amusing to see the maddest Indian in Pine Ridge running around the yard, holding his stomach and shouting. The police came up to ascertain the trouble, and they laughed too when we told them. George never came to see me afterward, and I suppose he longs for my scalp, although really I had no intentional part in the unfortunate affair.

A year or two before the ghost dance, a well-known philanthropist visited Pine Ridge just before Christmas and brought with him numerous boxes and barrels containing clothing and gifts for the Indians. He placed his boxes in formidable array on the platform of a mission church and the Indians flocked from far and near and filled the edifice to overflowing. It was announced to them by the interpreter that when this kind gentleman had delivered a brief address he would proceed to open the boxes and distribute the gifts.

Not wishing to lose so good an opportunity to impress upon his hearers the need of education and morality, the good man spoke at great length. After he had talked for an hour an old Indian, who was not in sympathy with modern ideals, said something in a loud voice. Naturally surprised, the old gentleman paused in his sermon and turning to the interpreter asked, "What does my good friend and chief say?" The interpreter hesitated to offend the philanthropist and said, "I'd rather not tell you." "Yes, but I must know," persisted the gentleman. "Well," said the interpreter, "he says, give us more presents and less talk."

In passing the ghost dance it should be noted that several men made capital out of the sufferings of the Sioux. English-speaking Indians were enticed away by certain "wild-west" show companies and what was once a religious ceremony was debauched into a money-making scheme. The Commissioner of Indian Affairs did well to prohibit reservation Sioux from joining the demoralizing exhibitions.

The proprietors of such shows love the Indian for what they can get out of him. When the real history of affairs on the Great Plains is written—1830 to 1892—some of our Bills and Dicks will not appear to advantage. The Indians' side has not been heard. Mrs. Jackson, in her "Century of Dishonor," but began the revelation.

My old college friend, Dr. George A. Dorsey, was at this time studying for his Ph. D. under Professor Putnam at Harvard. He and I corresponded relative to work under Professor Putnam in the interest of the World's Columbian Exposition. While waiting the appointment I continued work and study under Dr. Thomas Wilson. Looking back upon these years I can truthfully say that I have only happy memories of my association with the dear old Doctor.

Doctor Wilson was ever in good humor. I never saw him lose his temper although Fowke related an incident to this effect that occurred at Flint Ridge. He and Doctor Wilson were crossing a field and were suddenly and unexpectedly charged by a large ram. Fowke, being very tall and active, engaged the animal's attention thus giving the Doctor, who was short and stout, time to reach the fence. Safe upon

the other side the Doctor shook his fist at the animal and called him sundry names, while Fowke becoming weary of the sport of dodging, outran the beast and vaulted the fence to safety.

Doctor Wilson had a fund of good stories with which he was wont to enliven the tedium of—

Flints and stones
And musty tomes
And dead men's bones.

Although of engaging disposition he could rebuke affrontry and ignorance. Upon one occasion a very pompous individual entered the hall and I attempted to show him the exhibits. He had been there but ten or fifteen minutes when, becoming weary, he said to me: "You needn't explain further. I know all about these things."

Doctor Wilson at this moment came out of his office and having overheard the remark he immediately approached the stranger, laid a paternal hand on his shoulder and said impressively: "My dear sir, if you know all about these things you are the very man we want. I have studied them twenty years and I am at a loss to understand their meaning. Come over to Professor Langley's and I shall resign at once in your favor."

A few months after Doctor Wilson's death, Mr. Cahill, caretaker in the Smithsonian, died. This man had been for thirty years employed in the hall devoted to prehistoric archaeology and had served under Doctor Rau and others. He had picked up a great deal of information during these years and as he went about in his quiet way dusting the cases, he frequently answered questions propounded to him by visitors. He had the native Irish wit and some of his sayings are worthy of preservation.

A pompous Englishman entered the exhibition hall and gazed at a certain famous display, pondered over the label and then turned to Cahill—who was rubbing a near case—and said:

"My mon, I have looked in this case ten minutes and I cawn't understand it."

"Sure, sor," replied Cahill, "if ye looked at it all day could ye understand it?"

When the question of Gardner's theory of monkey language was interesting Washington scientists, Cahill said:

"And, sor, I never heard monkeys talk loike men, but I have heard men talk loike monkeys."

While passing through a hall containing ethnologic exhibits he paused before a case of scalp-fringed garments and remarked to me:

"Now I know why Congress always sinds bald-headed politicians to trate with the Indians."

Visitor—"Why are these stones labeled 'un-known'?"

Cahill—"To educate the public."

Visitor—"Why, how's that?"

Cahill—"Well, you see if they were labeled loike the other stones nobody would ask me questions."

CHAPTER XII.

AT FORT ANCIENT AND HOPEWELL'S.

An archaeological student plays many parts. He must explore, study and write. He should be cosmopolitan and equally at home in the museum as in camp. To-day he participates in discussions at some scientific meeting; to-morrow, he joins in the small talk of farmers gathered about the mound he is opening. The ability to make one's self agreeable to rustics is not to be despised. In fact, I know two gentlemen—both eminent in archaeology—they have neither tact nor a pleasing personality—who have found it difficult to secure permission from land owners for exploration of ancient remains. A little personal interest in the affairs of the natives, a friendly conversation of an hour or two at the cross-roads grocery, or an unbending of dignity would have put them right in the eyes of the property owners. Except in Ross County, Ohio, I have been refused permission to explore but eight mounds or village sites, and I have asked and received consent of more than four hundred landowners.

It was toward the end of March, 1901, that a letter came from Mr. George A. Dorsey, then an assistant under Professor Putnam of the Peabody Museum. This letter, as the diary entry truly remarks, made a change in my life. Dorsey had been a college chum and each of us had a high regard for the other.

He asked me to come to Cambridge and see Professor Putnam; he said that the World's Columbian Exposition at Chicago had been recently organized and that the Professor wished me to undertake field work for the Department of Anthropology. Immediately I started for Cambridge, went to Harvard University and consulted with Dorsey. The following morning we called upon Professor Putnam. A most pleasant conversation ensued, lasting some three hours, and resulted in my employment as a field assistant.

Three days later the following welcome telegram was delivered at my rooms:

"Start at once for Fort Ancient.—F. W. P."

I had asked Fowke to join the survey, but he had accepted a position with Professor Holmes and could not do so, so I employed Messrs. George Little and John Munger, of Xenia, both competent surveyors. A force of workmen was employed and continued at the task of excavation until July 1, when I was ordered to report at Cambridge. Mr. Little had made

a careful survey, laid off cross sections, etc., and investigated one or two points omitted in the 1889 survey. These measurements would enable Professor Putnam to make a papier-mache model of the work.

Shortly after locating at Fort Ancient, April 8, visitors began to flock in. In the previous years the explorations had not attracted general attention, but during April, May and June of our stay frequent excursions came. May 8 the State Archaeological Society Committee came down and held a conference with our party. They permitted us to carry on explorations upon their land.

During May what we called "opening days" were inaugurated. We saved the stone graves until we had some 18 to 25 ready and on certain stated dates we opened these graves. One opening day there were 550 persons present and on our largest day the crowd was estimated at over 1,000, for 800 were counted present at noon by one of the men. Two trains bearing excursionists were run from Cincinnati.

A total of seventy skeletons were found during the eleven weeks' digging. The whole of the bottoms lying between the railway and the river (above Fort Ancient station) were dug over and not a little work was done in the South Fort.

Our stay at Fort Ancient was extremely pleasant. Many friends visited us, bass fishing was good and the weather could not have been more perfect. The entire force regretted the termination of the survey.

Some amusing experiences should not be omitted. An elderly and worthy gentleman was much disturbed because we were permitted to exhume these ancient people. He wrote frequent letters to the county papers, one of which I give herewith:

"Editor of the —:

"Is there any law against grave robbery? If there is, why is it that our officers and citizens permit grave robbery at Fort Ancient?

"Is it any less a crime to rob graves in large number than it is to rob a single grave?

"If there is a law of Ohio which makes it an offense to rob the grave of a human being why is not the law enforced?

"Are we acting on the principal of the golden rule—"Do unto others as you would have others do unto you"—and let this work be carried on as it is now done at Fort Ancient?

"While I am in favor of the human family gaining all the information possible respecting the history of our country and the races of people that have inhabited it, certainly it does seem to be going too far to tear from these old graves the bones of mothers, fathers and children, who lived and loved and buried their dead in sorrow as we bury ours.

"Let us protest against this work. Let us speak out against it, and if it is a violation of law, let the law be enforced.

W. H."

Other papers took up the question on my side and a merry comic-opera war ran through the press. The Washington Star sent a reporter over to Dr. Wilson and this is what was printed:

"Mr. Moorehead is a well known antiquary and for some time past has been spending his money and time in a fruitful study of that grand relic of prehistoric times on the Little Miami River which they call Fort Ancient. A few weeks ago he made a remarkable and valuable discovery—a tomb with a dozen or more skeletons. And now some jealous rivals have sprung upon him the Ohio statute which makes it a penitentiary offense for one, who, 'without lawful authority, wilfully opens a grave or tomb where any corpse has been deposited.'

"When the fact was called to the attention of Col. Wilson, curator of prehistoric anthropology at the Smithsonian, he said to the Star reporter that he did not think there were any grounds for the case. 'If there were,' said he, 'the coroner of the District of Columbia must have been wholly derelict in his duty in not holding an inquest over the body of the Egyptian mummy in the museum. And we have a number of sections of prehistoric humanity that ought never to have been allowed to come into the city without the proper death certificate made out by the attending physician.'

Through July I worked over the bones and implements found at Fort Ancient. It was cool in the Peabody Museum basement and I managed to work from early until late. Instead of requiring three months to complete the washing and arranging of the collection, the time spent was about five weeks. I asked permission to take the field again and was sent at once to Oregonia, Warren County, Ohio, to the Taylor farm near the mouth of Caesar's Creek. This is about five miles above Fort Ancient.

Here we found a large mound, a village site and cemetery and exhumed nearly a hundred adults and children. There was a knife, or flint object of unknown use, fourteen inches long buried by the side of one skeleton.

Thursday, August 27, the camp at Oregonia was broken and we hired wagons to carry our outfit and men across country to the Hopewell Group. I rode over on a bicycle as far as Washington C. H., where I awaited the wagons. The men reached camp at 8 o'clock Friday night, hastily put up a tent and turned in well tired after nearly eighty miles overland through great heat.

Next morning camp was put in permanent order near a fine spring on the terrace overlooking Mr.

Hopewell's farm. The owner we found to be a kind and courteous gentleman who gave us full and complete permission to explore on his estate.

The explorations marked an epoch in American archaeology, for it is no exaggeration to say that such a diversity of copper and other material had not previously been found. A full description has been published in the Antiquarian and American Archaeologist of '97-8.

For six months the expedition labored at Hopewell's. Five teams and scrapers, and a dozen shovellers were employed almost continuously. In February the work was brought to an end and I reported at Cambridge again. En route there I stopped in New York and called upon Mr. Minton, of The Illustrated American. He informed me that the Pine Ridge ghost dance articles had met with success and that he wished me to conduct an expedition into the cliff-dweller country of Utah, New Mexico and Arizona. He made a very liberal proposition and I laid the matter before Professor Putnam. He agreed to recognize the expedition and to help us in return for all specimens found. Returning to New York I interviewed Minton.

While in New York preparing for the expedition Mr. Minton went away for some days, but left me orders to proceed with the purchase of supplies and equipment. When he returned he found some fault with my arrangements, but after we had talked it over he agreed in most particulars. Minton was an abrupt and quick tempered man. I spent some six days in getting ready. The diary entry on the night of departure states: He has placed a great deal of confidence in me and I shall try to make the expedition a success in every particular.

Minton sent me down to see Mr. George Gould regarding passes for our party. Mr. Gold gave me two passes from New York to Durango and four passes from Cincinnati to Durango and return. I had a most pleasant chat with him. Upon return to The Illustrated American office, Minton said: "Why didn't you get sleeper transportation too?" I replied that I thought Mr. Gould had done enough already.

"Always get all you can; now do you go right back there and ask for sleepers." So back I went. Mr. Gould was surprised to hear the request. "Why," said he, "we have already given your people the equivalent of four hundred dollars. Next Mr. Minton will want us to furnish meals en route." I explained my position and Mr. Gould laughed and said: "Tell Mr. Minton that he has his nerve."

CHAPTER XIII.

OFF FOR THE SOUTHWEST.

Our outfit weighed some four thousand pounds. The equipment was complete. A partial list is as follows:

Surveying and photographic outfits, drawing materials; 1,000 pounds of canned beef, bacon and hams; 500 pounds canned goods, dried fruits, etc.; 500 pounds miscellaneous supplies; 1,000 feet best rope; guns and ammunition; special packing cases; 250 small sacks of tobacco for Navajos and other Indians, etc., etc.

We were now ready. Anxious to get a glimpse of the Hopewell Group, I took the Baltimore & Ohio and asked the porter to awaken me at Chillicothe. It was past midnight when the train pulled out along the well-known track toward Anderson Station. I raised the curtain and peered out. Presently we were alongside the familiar field. A light snow covered the remains of our effigy—whose ancient dead we had removed even from their last resting place—and made the outlines of that truly great monument barely discernible. A moment later as the train sped on, the darkness had it, and the famous Hopewell Group, where we had toiled so long, vanished in the night.

On arrival at Durango we found that the trunks and boxes had not come. Our checked baggage included a tent and blankets, etc. We purchased a small lot of provisions and moved three miles up Wild Cat canyon from Durango and went into camp for three days. In the East it had been warm; it was quite cold here and I wished to see how the men got on under adverse conditions. Two of them had never roughed it and suffered somewhat. In fact, snow water agreed with none of us and we were glad when the boxes and trunks arrived and we could get the outfit together. Several westerners were employed. Matthews, who was formerly a government packer, to take charge of our nine burros; Cox, a Mexican-American, to cook (he also furnished a wagon); and Olinger, an old time teamster with a pair of fine horses and good wagon. In starting we had no little trouble with the burros and it was some days before Matthews got them licked into good form.

From New York a Mr. Rowley accompanied us as naturalist. He was sent to collect desert animals, birds and reptiles. His baggage added nearly three thousand pounds to the expedition and soon I was compelled to cut it down one-half, and later to reduce it still further. Mr. Maurice Longnecker from Cincinnati came on with the boys—I had joined the party at St. Louis—and he became one of our most valuable men. He was not in the original "cast," but was extremely anxious to see the country; so



Mr. Moorehead's Headquarters at Pine Ridge.

Cowen and Gunckel brought him along. As to the right-hand men of the expedition Mr. Minton said:

"Mr. Clinton Cowen, of Cincinnati, is the surveyor and topographical artist. Mr. Cowen is in his thirty-first year. He has served at Fort Ancient with Mr. Moorehead in 1889, and at the Hopewell Group during the past season. He has also surveyed Fort Hill and the Serpent Mound with a relief model. He is probably the only man in the country—with the exception of the Mindeleff brothers at Washington—who devotes his entire time and mathematical knowledge to the reproducing on paper and plaster of Paris of aboriginal earthworks and stone runs. His labors in this direction have naturally made him a good archaeologist."

"Mr. Lewis W. Gunckel, a son of Ex-Congressman Gunckel, of Dayton, O., is a geologist. He graduated at Yale from the scientific class of '91. He will make observations upon the geology and natural history of the region through which the survey will pass. He will examine the old Spanish missions, and look into some of the Mormon settlements, such as are in Southern Utah."

"Mr. William W. Ralston, of Cincinnati, accompanies the expedition as one of the assistants. He was with Mr. Moorehead at Fort Ancient in 1889, and at the Hopewell Group last year. He has had sev-

eral years' experience in the field, and is a valuable man in many particulars."

"Mr. Remington Lane, of Cincinnati, is the artist and photographer. Mr. Lane studied in Germany and Munich, and has been an instructor at the Cincinnati Art School. His paintings and sketches are well known through the Central States. He has won a number of diplomas."

Camp was established in an old cabin overlooking the river. A few exact copies of the diary notes will give an idea as to how our time was spent.

THURSDAY, MARCH 17, 1892.

From our cabin the scenery is typical of the region—the barren foot-hills and mesas stretching as far as eye can reach down each side of the valley, and the more fertile alluvial bottom lands, on each side of the river, extend southward fifteen miles, where the Animas empties into the picturesque Rio San Juan. It is also an interesting region for the sportsman, for almost at any time one can see ducks and plover along the river, and one hundred yards from our cabin can be found plenty of rabbits, and prairie dogs by the thousand, while some ten or fifteen miles distant the sturdy Nimrod can find deer, coyotes, and an occasional mountain lion.

We worked around the ruins all the morning. Yesterday it snowed and hailed so that it prevented

much work being done. As it was clear to-day we took several photographs of the ruins.

FRIDAY, MARCH 18.

Gunckel and Ralston helped Cowen survey in the morning. Rowley worked on his mice and birds. We worked on the first article for *The Illustrated American*. Some men from Aztec said there was a graveyard on the mesa and we went up with them and prospected a little. We found about twenty or thirty stone piles or burying places, but did not think they were worth digging. In the evening Lane went up to the ruins, crawled into the inner rooms and took flash light photographs.

SATURDAY, MARCH 19.

Finished our first article for *The Illustrated American* and sent it in together with the photographs and sketches. The teamster returned about 4 o'clock in the afternoon with the five trunks and some more provisions. The trunks being cheap ones were in bad condition and some of the chemicals were broken and scattered about. The Winchester rifles and Colt revolvers were in good condition.

SUNDAY, MARCH 20.

The day was spent in writing letters home, walking about the plain examining the ruins, and gathering up pieces of pottery, which lay in countless numbers all over the plain. We put up the two new tents, one for our provisions, and in the other we eat.

The ruins at Aztec are owned by Mr. John Koontz. He permitted us to survey them, but would allow no extensive excavations. These ruins form a most imposing pile of masonry, standing as they do in majestic prominence, the principal landmark of the valley of the Rio del las Animas, for miles around. From its top, looking toward the west, can be seen the beautiful snow-clad peaks of the range of La Plata, seventy miles distant, while to the east extend the lowlands with the barren mesa for a background, and toward the north and south the winding Animas River. Our work on these ruins consisted in making a careful survey.

Scattered at uneven intervals about the valley, near the ruins, are accumulations of earth and stone resembling, to a very great extent, natural mounds or heaps of stone; but close scrutiny refers their origin to human hands.

Between the east and west divisions of the pueblo, about half-way from each other, are the ruins of an estufa, surrounded on all sides by a series of small rooms. This estufa was of the same measurement and diameter as several noted within the pueblos, and its isolated position, between the two ruins, gave it great importance. Perhaps within its aged walls the great councils of the head men, meetings of secret

orders, etc., of both pueblos were held, and matters of importance to the tribes were discussed.

The top walls of the ruins are in a poor state of preservation, and lean to such an extent that we were afraid that they would fall at almost any moment. In all probability, when next they are visited they will be found mingled with the mass of debris that surrounds them on all sides. As they stand now, it is easy to see that they formed the third story of the pueblo, and, judging from the pile of fallen stone, the building must have originally been about four stories in height. While most of the upper walls have crumbled and fallen, the heavy masonry and solid floors of the first and second stories remain intact. The piles of stone and earth, accumulated above them to a height of many feet, convert these stories into what are practically series of underground rooms. Communication from one to the other is afforded only by means of small holes just large enough for a person to creep through.

The western or large pueblo covers an area of about sixty thousand square feet, and has an average height on the main front of eighteen feet, making in all about sixteen thousand perches, or four hundred thousand cubic feet of masonry. The eastern pueblo will average a little less than this, but its dilapidated condition and fallen walls make it impossible to give exact measurements without spending more time on the work than we could afford. The only rooms that can be made out at all are the seven estufas, which resemble to a great extent those of the western pueblo. This pueblo is either considerably the older of the two, or it was built in a less substantial manner, for at present writing it is little more than a large uneven heap of stones and debris.

Exploring these underground rooms was the most exciting and interesting part of our work at Aztec. It is difficult for one who has never been in underground and deserted rooms to realize the weird and awful silence which reigns in these long-deserted chambers. The flickering light disappearing in the distance as the explorer advances, the sense inspired by the solid masonry, the stained and aged rafters in the ceiling, the mystery of the forgotten builders combined to thrill the imagination with romantic visions of the past. Our time was limited and we were compelled to make these chambers serve not as places to induce sentiment, but as dark rooms for our photographer. For this purpose they proved admirable. On one occasion Mr. Lane crawled through narrow passageways until he had reached a remote chamber from the entrance and then prepared to take a flash light. Placing his camera in position and getting everything ready, he blew out his candle, felt in his pocket for matches to touch off the flash

light. To his horror he discovered that he had brought none with him. He had forgotten the most important item needed in his work. He carefully packed his camera and after what seemed to him a number of hours found his way out. He had been in the ruin less than forty minutes.

West of these ruins, ranging from 200 to 300 feet in height, extends an imposing mesa, upon which there are unmistakable signs of a burying ground. Small heaps of debris are found at intervals all along the ridge, while surrounding every prairie dog hole are found fragments of pottery which the animals have brought to the surface in burrowing their holes. Conspicuous among the small mounds, which are found all along the mesa, is a large circle rudely constructed and imperfect in its outlines, having a diameter of about 125 feet. One morning two members of the party were walking along this mesa about half a mile from the circle. Selecting a likely spot they uncovered a fragmentary skeleton and some decorated pottery.

One of the most interesting features connected with this remarkable group is that the quarries from which the soft stone utilized in the walls was obtained are found at a short distance (something like two miles). A broad trail or road leads from the ruins over the hills and the valley back to the mesa, where the quarries were. Numerous broken axes of rude form, stone hammers and others quarry tools have been found on the site. The road does not seek the easy grades, but goes up direct over a high and steep slope of the mesa (perhaps 150 feet elevation), and bears every evidence of having been well traveled.

The ruins themselves are in a remarkable state of preservation. In places they stood, originally, four stories high. Throughout most of their extent they were three stories high, and with the exception of the lower portions facing the river, in no place were they less than two stories in height. The beams or rafters of rooms were massive; the walls are composed of stone about as large as granite paving blocks used in modern times in our cities. The beams separating the second story from lower rooms are very heavy and splendidly preserved. It is possible to crawl through one of several openings into these lower story rooms (or as the natives call them, underground rooms) and pass from one room to another until one has traversed 40 or 50 chambers varying from 10 by 12 feet, and 8 feet in height, to several large ones 14 by 16 feet, and 10 feet in height. I have seldom seen larger rooms in any of the ruins. There are two chief buildings, with a small one between and several others near by; the western (one to the left) being the largest. The smaller ones are of water-worn boulders and belong to that numerous

class known as "boulder ruins," to distinguish them from the buildings of dressed stone.

The plan, drawn by Mr. Cowen, gives a good idea of the western pueblo. At a glance several kivas or estufas will be seen. In making the survey (as excavations were not permitted) he was greatly handicapped by the fallen walls and ruined condition of some parts of the buildings. In places the accumulation of debris reached a height of twenty-three feet.

It is no more than just to remark, in passing, that Mr. Gunckel wrote most of the article treating of the Aztec ruins.

CHAPTER XIV.

ON TO THE LA PLATA.

The 24th I went to Durango to telegraph Mr. Minton for money. Expenses of the expedition were heavy and we were in need of funds. The 26th Ralston made the following entry:

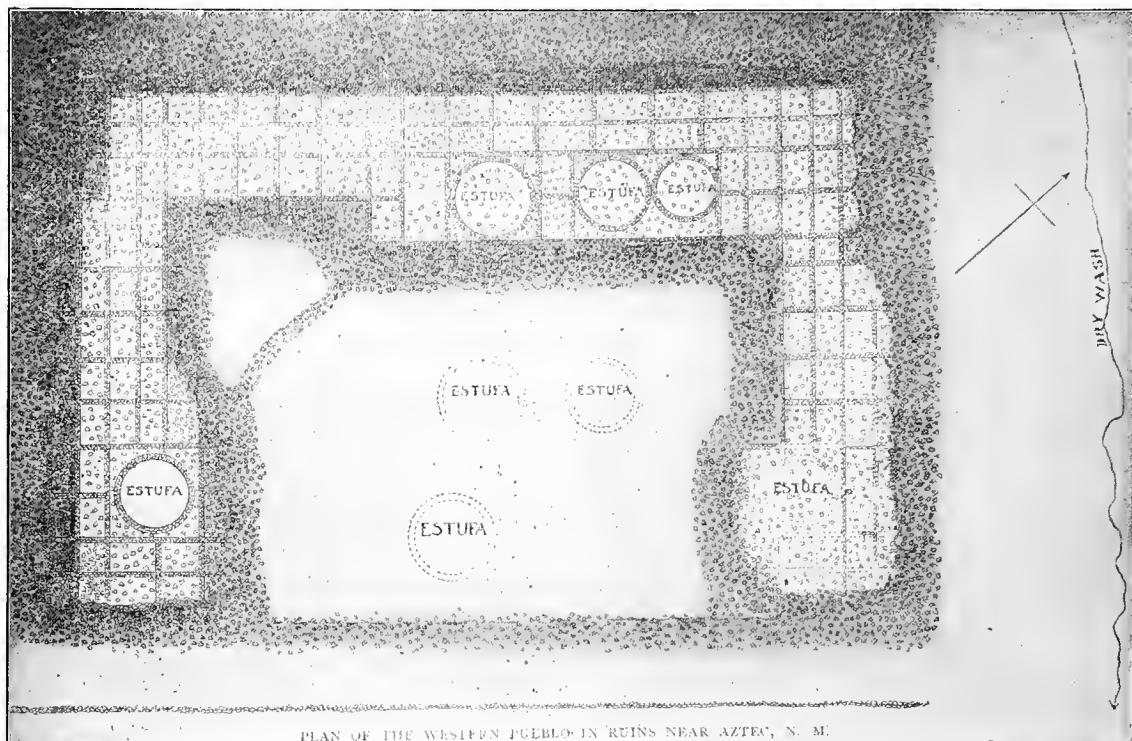
The night was very cold and in the morning we had a snow storm accompanied by a heavy wind. The second article was finished with the exception of several pictures. Mr. Cowen is nearly through with the map of the ruins. We had no word from Mr. Moorehead who was expected on the stage which runs between Durango and Farmington. This stage is a great curiosity, by the way, and is hardly worthy of the name of stage. It is nothing but a common farm wagon with no top. It also carries the mail and a few express packages. The passengers are jolted and tumbled around as the wagon crosses the rough mesas and fords streams, and every now and then the driver remarks, "Keep your seat," which needless to say is hard to do. They change horses about every ten miles and keep up a brisk trot.

SATURDAY, MARCH 26.

Moorehead came on the afternoon stage. No money from headquarters, so he wired home for funds of his own. Professor Putnam is expected to send the permits to go onto Indian reservations in a few days.

All the boys were made happy to-day by being informed that they could go hunting in the morning for deer and turkeys. So there was a great overhauling of guns and ammunition. The cook and teamster vied with each other in spinning yarns about "b'ar" and bucks.

Several wild ducks were noticed along the river to-day. Cowen made a wager with Moorehead as to marksmanship with the revolvers and beat him badly. Severe winds blew part of the day; there was snow and hail in the morning.



The men (Rowley, Cowen, Ralston, Longnecker, and the teamster) left at sunrise in the large wagon for the hills. Moorehead and Gunckel set their lines in the river hoping to catch fish, but caught none. We have gradually become accustomed to camp life and enjoy it better. Moorehead's arrival with eighteen new blankets was a godsend. We suffered severely at night before they came for we had but two blankets per man.

Rowley has not caught many animals of late and sighs for new pastures.

The minister of Aztec called to-day—a typical Western parson. Persons have called to have their children photographed and went away disappointed.

A cowboy held up the stage and terrorized citizens last week with his gun. He has fled into the Blue Mountains.

The hunting party returned in the afternoon having only secured two small birds, a wild duck, and a jack-rabbit. Some few deer tracks were seen.

Ralston, March 28, was given charge of the diary.

We were up at 5 o'clock packing, preparatory to moving on La Plata. One of the dreaded wind and sand storms, of which we had heard, began while we ate breakfast, but we kept on with the work and packed up.

Considerable merriment was made in the packing of the burros; Cowen and Ralston causing much laughter trying to hold them. At 10:30 a. m. we were all started and the outfit, consisting of ten men, six horses, two wagons, and the nine burros, made quite a sight. La Plata was seventeen miles away; we would not have minded the distance so much, but the wind blew the sand with stinging force into our faces and we could hardly bear each other speak. Besides it was very cold. We did not stop for dinner but kept on, finally reaching La Plata at 4:30 p. m., the storm having then about spent itself.

MARCH 30.

After leaving Aztec the sand storm reached the height of its fury. It beat down upon us mercilessly. Such a gale none of us had ever witnessed before. The sand struck us fairly in the face, filling our eyes and ears. The wind blew with such force that we could scarcely walk. The burros staggered under their loads and the horses had all they could pull with wagons only moderately loaded. Hour after hour we toiled through the blasting storm until, at last, we reached camping ground on Mr. Henderson's ranch. Our tents were pitched beside the swift La Plata, and we retired early utterly fagged out with our wearisome journey.

Tuesday morning we set out to examine the ruins, which extend far up and down the valley. We prospected a little and found several skeletons, two whole pots, several fragmentary ones (one beautifully decorated), a bone awl, and about twenty small, but beautifully wrought arrow-heads.

Wednesday morning we unearthed two large pots which had flat stones placed over the tops. The weight of the earth and boulders had partially crushed them. However, we took photographs of them in position in the excavation, but could not take them out whole, although they can be restored. Several stone axes, a metate, and twenty-four of the small arrow points were found. We also began the excavation of a room about twelve feet square. The nights are very cold and twice we have found the ground covered with snow in the morning.



Doorways in the Aztec Pueblo.

MARCH 31.

When we awoke in the morning we found the ground covered with snow and the thermometer at 16 degrees above zero. It was so bitterly cold that very little work could be done. We were glad to receive the mail in the afternoon and to see what

was going on in the outside world. We got no word from The American.

APRIL 1.

We started the third article for The American in the morning and two short stories were written upon the typewriter which the stenographer took Wednesday when Navajos Milt (Milton Hollingsworth) visited us. Lane also sketched him. The afternoon was spent at the ruins, Mr. Cowen in surveying and the rest of us in locating and opening graves. We found several skeletons, one of which had several whole pots or earthen vessels with it. A photograph was taken with everything in position. Several more axes and arrow-heads were found.

One of the above skeletons was found by noticing an unusual amount of fragments of pottery around a prairie dog's hole which the animal in burrowing had thrown up. From this fact we decided it must be an ancient burying place. In digging down into the hole we soon came across the end of a bowl shaped like a basin. We then took the small hand trowels and worked very carefully around it, and soon brought to light the whole bowl. While digging the dirt out of the center of it we found two spoon-shaped implements evidently made from the femur of the elk or deer. A small flint knife was also taken out of the bowl. Then carefully removing the earth to the left of this, we unearthed a skull. The skeleton was that of an adult in a fair state of preservation and laid about one and a half feet below the surface of the mesa. At the right of the skeleton we found three more bowls. The first one we took out had red decorations on the inside, and measured nine inches in width and five in depth. Inside of this bowl was a smaller one shaped like a sugar-bowl about four inches in diameter. Lying next to this, a small cup-shaped bowl evidently used for a drinking vessel, without decoration. Next to this we found another small vessel shaped like a dipper with a long handle to it. Two more flint knives were taken out of the earth in this dipper. This was all in the grave.

APRIL 2.

We pitched our third tent and made a workroom for the photographer. Fire-wood is very scarce and we have to take the wagon and go back three miles into the foot-hills for it. Some fish were caught in the river and Mr. Rowley found a porcupine in one of his traps. Another big snow in the afternoon stopped all work.

APRIL 3.

The snow fell all night and most of the day. We were compelled to stay in the tents, write letters, and pass the time as best we could.



The Ruins at Aztec, N. M.

CHAPTER XV.

RUINS ON THE RIO LA PLATA.

The valley of the Rio La Plata is narrower than the Animas and more fertile. It is a promising fruit and cattle country. In ancient times it was well peopled—perhaps by the same tribe that lived along the Animas.

The ruins vary from one-room to fifty-room structures. Sandstone slabs, as near the desired form as could be found, were selected to be used in the walls. Many of these did not well fit and were chipped or blocked into shape. The similarity is not confined to architecture alone. Pottery, axes, projectile points, etc., of the two regions are identical.

The natives irrigated hundreds of acres about these ruins. One can trace the outlines of their ditches for several miles in spite of the shifting, ever-changing sands. That many of the ditches are now filled or obliterated one does not doubt.

The ancient farmer ran his ditches at the foot of the mesa and not high upon it as does the present ranchman. Falling rapidly, as does the La Plata, it was not necessary for him to make his rude dam far above the tract he wished to water. From the main canal which was used, we think, in common the people ran small ditches or laterals and from these still smaller streams to the individual garden beds. I say garden beds, for the surface indications are that there were thousands of small beds. These, to-day, lie some feet below the surface, but occasionally in the spring when the melting snows of the Rocky Mountains swell the La Plata into a raging torrent

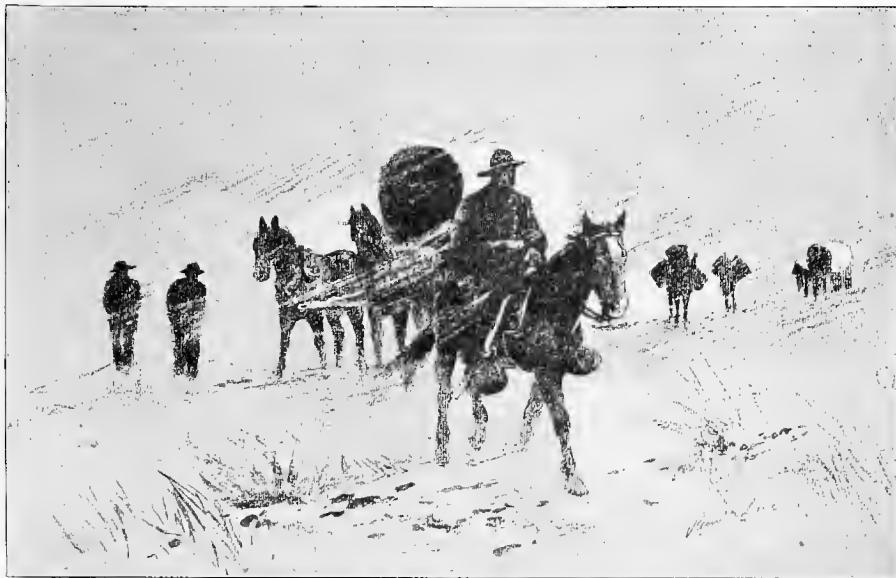
the sand above a given spot may be washed away. It is then that they are seen to be very like the great expanse of garden beds found near our modern cities.

Plants grow rapidly in this climate. The owner of the lands on which we are encamped raises all his garden truck in six weeks from the time of planting. Without irrigation the soil is valueless; with it he can produce three crops each year. The observer from the East must appreciate these facts else he can not understand how so large a population could have existed in a desert land. He must remember that the pueblo inhabitants were not roving savages, but lived for long periods of time in substantially built houses of stone or adobe bricks.

Farther up the La Plata, where in summer it is so low and small that one can jump across it, the region is interesting to the archaeologist. From a high point on the mesa the view is strange and fascinating. Little vegetation can be seen except pinon, cactus and sage-bush. As far as the vision commands are undulating valleys, with mesas and foothills; here and there are deep, intersecting canyons, and now and then stands a high point looming up like a sentinel watching over the dreary waste.

Along the mesas, about a quarter of a mile from the Plata, are numerous and unmistakable signs of a prehistoric race which once lived and evidently prospered in this region. On almost every prominent point are mounds of debris and rudely squared stones which mark the homes of these people, all in a state of far-advanced ruin, with only a few walls remaining intact and projecting above the mounds.

Among the most interesting of the relics found in this locality are the small and delicately formed

*The Sand Storm.*

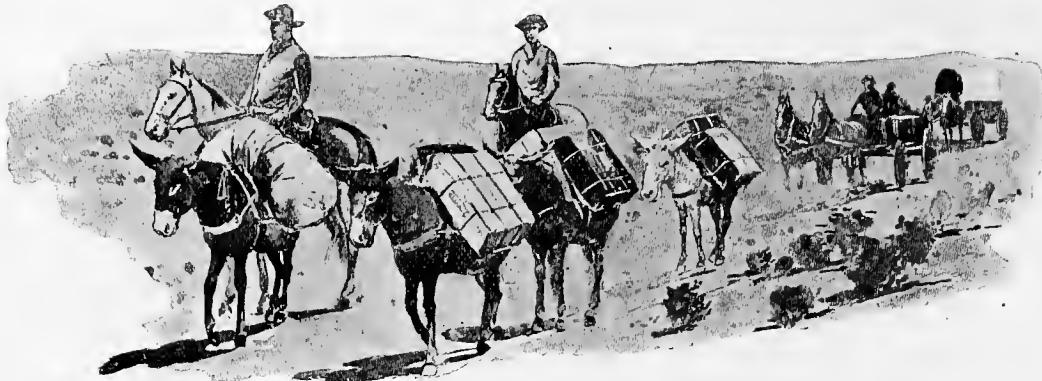
arrow-points, equalling in minuteness even those of Oregon. They are chipped from obsidian, jasper, moss-agate, and many variegated tints and colors of flint, and because of their translucent blades and delicately notched bases and unique designs, they are much sought after by the inhabitants of this region. Some which we found measured but half an inch in length, and were of exquisite workmanship. They are very difficult to find, and one may walk over the same ground a dozen times without detecting their presence. This we found by experience, after much wondering how the small boys at the neighboring ranches could find them while we could not. After a time we learned the secret. In order to find the smaller and more valuable points, one must pick out a good locality and closely examine the ground, going over it on hands and knees.

At intervals along the mesa, and among the ruins, are found many stone axes, resembling to a great extent those unearthed in the East, and many large stone metates, which were probably used for grinding the corn, seeds and grain for food—while the ground is literally strewn with fragments of pottery in every direction.

At one point on the mesa we noticed, around a prairie-dog's hole, multitudinous fragments of pottery, also pieces of human bones which the animal had brought to the surface when burrowing. From this fact we decided that it must be an ancient burying place, and, returning to camp for the necessary picks, shovels, and small hand trowels, we com-

menced excavating. Soon we noticed the side of a bowl protruding from one side of the excavation. We dug around it with the small hand trowels—necessary implements in doing careful work—and soon brought to light a bowl shaped like a basin, rather poorly decorated, and broken at the edges. While taking the dirt out of the center of it we found two large bone spoons, evidently made from the femur of the elk or bear, of unusual form and interest; and one flint knife, about two inches in length and quite sharp. Then carefully removing the earth to the left of this, we unearthed a skull, lying face upward, in a good state of preservation. The head lay facing the rising sun, but the limbs had been doubled so that the knees nearly reached the chest.

The body had presumably been interred in a sitting posture. The skull showed a narrow forehead. This skeleton was that of an adult and was in a fair state of preservation, and lay about a foot and a half below the surface. From our experience in the matter of finds we felt confident that there would be more pottery near the right hand, and this supposition was verified, for with the hand-trowels we uncovered the edge of a bowl nine inches wide and five inches deep, with decorations in red inside. Inside the bowl was a smaller one, and just beyond lay a smaller cup two by four inches. In it was a flint knife. Some inches beyond was a dipper, or ladle shaped vessel. Most of the large bowls found were covered by thin, round stone slabs. These are seldom found upon the smaller pottery. More objects



The Expedition en Route.

were found in this tomb than with any single interment on the La Plata.

Of other skeletons found much might be written. With one, buried extended and not on the side as were some of them, had been placed four decorated bowls. The paint used in decorating the pottery was in no way inferior to some of our modern dyes. Centuries may have elapsed since the graves were dug, sands have shifted and animals made burrows. Yet the designs are fresh and clear, and an observer who did not know the circumstances would be pardoned if he thought the work quite modern. Clay for the vessels was selected with care and the burning done to a nicely.

All the skulls appear to be brachycephalic in character.

Upon the west bank of the river, on Mr. Henderson's land, are numerous small stone mounds. These may mark the site of boulder ruins. Some observers are inclined to make a distinction between the boulder ruins and those larger ones of selected, or partially dressed stone. We excavated one of the mounds, finding in the course of work two large black jars. Both were covered by the usual thin, flat stones. The jars were in fragments, but they were saved and can be restored. No skeleton was found in the mound. It may have been a habitation site.

The nights now are bright, moonlight ones and warmer than a week ago. The thermometer seldom drops below fifty at night. We love to sit about our bright camp-fire, tell stories and sing. The old timers told us many tales about the Navajos. The more striking of these have been taken down in shorthand by Ralston.

We shall leave for Bluff City as soon as our money comes from the East.

APRIL 6.

It was a beautiful day and the boys were early to work. The weather has grown warmer now and we can work to a better advantage. A calf was brought from a neighboring ranch and killed for camp use. After so much bacon and corned beef, we pronounced it delicious. The teamster also caught twenty-one fish. Photographs were made of the pottery and the skull.

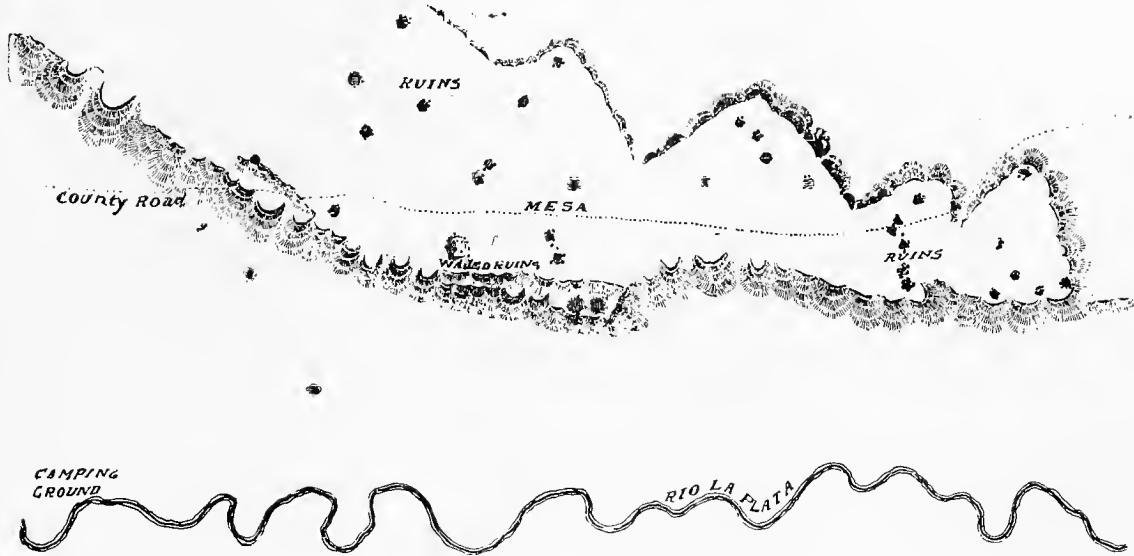
One skeleton found doubled up, two jars and one broken bowl with it, fifteen inches from surface, head west.

One skeleton badly decayed. Two pots were found on the pelvis, one foot from surface. Many arrow-heads in the course of investigations have been found upon the surface. The cook went over to Aztec to see his family until to-morrow.

Chas. Smith, another old-timer, began work to-day. Beautiful weather. More arrow-heads found. Smith told us interesting stories. Moorehead unwell, back troubling him. In the afternoon work was begun on a large conical mound near the river. A trench was started on the east side and as we neared the center a stone wall was struck which had partially fallen in. Inside of the wall were many pieces of beautifully decorated pottery, a fine stone axe, and a polisher or rubber. It looked as though it had been an aboriginal workshop. The floor of inside of the wall was covered with a fine dust.

APRIL 7.

Another beautiful day. Three skeletons were unearthed upon the mesa. They lay on their sides with legs doubled up as has been described before. This seems to be a favorite form of burial with the inhabitants of the La Plata Valley. Eight bowls and dishes were found with the remains.



One Mile of Ruins on the La Plata.

No word from the East to-day. The third article was completed and sent to New York. Rowley has made a large collection of small animals and birds.

APRIL 11.

In the morning we took the cook's wagon and went up the La Plata River about five miles to examine the ruins which Gunckel and Cowen had noted on Saturday. The first skeleton we found had been buried on his face and was in a badly decayed condition. Near his head was a small bowl with a spiral decoration. The second skeleton was in a better state of preservation, being saved by large flat stone slabs which were placed above him. Almost all of the graves here contain these slabs. Such methods of burial we did not encounter in the lower ruins. Some arrow-heads were also picked up, they being somewhat longer than those found below. One bone awl was found. We stopped to get a load of alfalfa hay coming back and were all sitting on top of it, when the wagon went into a ditch, throwing off the cook, who was driving, and Ralston, who was holding the two bowls. Luckily the cook, although thrown under the front wheels, held on to the reins, stopping the horses. Ralston was thrown on his hands and knees, breaking one of the bowls, but it can easily be restored. It was fortunate the wagon did not turn over, as some of us would have been severely hurt. The specimens were packed this evening. They filled five large boxes.

CHAPTER XVI.

RUINS ON THE LA PLATA.

On Monday, April 11, we left our camp on the Rio La Plata and set out in one of the wagons, with surveying instruments, picks and shovels, to examine a series of ruins situated some five miles north. After a very rough ride over boulders and washouts through the picturesque valley of the Plata, we arrived at our destination and prepared for a day's work.

These ruins are situated on one of the most imposing and prominent points along the river, and are so placed that they command the entire horizon. Away to the north extends the valley of the ever-winding Rio La Plata, far into the Ute Reservation, with its snowclad mountains, where not a sign of civilization can be seen, and sage-brush, pinons, and grease-wood reign supreme. To the south the view is through a more fertile and cultivated valley. The ruins are situated five miles north of the town of La Plata, and three-quarters of a mile south of the Colorado State line, which is also the line of the Ute Reservation.

They extend over half a mile of sandy, sage-covered plateau or bluff one hundred and twenty-five feet above the Rio La Plata, and are situated upon land belonging to Mr. Firebaugh, who lives near by. The ruins are evidently those of a small pueblo village or communistic town, surrounded on all sides by smaller ruins and kivas, while near by are many burial sites. The altitude of the ruins is six thousand one hundred

feet above the level of the sea, and at present the only things of life to be seen on the ruins are hundreds of rabbits and lizards, and here and there a tarantula.

It speaks well for the ancient builders of this communistic town to have chosen such a favorable site for their village, near good water and high above the surrounding valley, where the scenery is magnificent, and where a handful of men could easily repulse an enemy. With all these advantages, they took the precaution to build a watch-tower upon a neighboring promontory, one hundred feet higher than the ruin, thus doubly insuring the safety of the town in case of attack, while in times of peace it must have made an imposing landmark.

The largest ruin on the mesa contains, at a rough estimate, about one hundred rooms, and was originally about three stories high; but at the present writing it is but a story and a half high and is choked with accumulation of dirt and debris, thus making it difficult to locate the walls and corners.

One noticeable fact in this ruin is a passageway formed by two walls running parallel with each other, two feet apart. One room on the west end was at some time set on fire, for the walls have evidently been heated to a high degree. On the south side of the ruin is a large kiva, measuring thirty-six feet across and of considerable depth with several lesser ones on the south side. On all sides surrounding this central pueblo are similar ones extending along the mesa, each in ruins to such a degree that it is impossible to ascertain their exact dimensions; yet at a rough estimate they contain in all at least one hundred rooms, which, with those in the central ruin, would make a total of about two hundred rooms on the mesa. Among these are some poorly defined kivas or circular depressions.

The map represented with this article is on the scale of one hundred feet to the inch, and necessarily does not show the minute details in the ruins, but gives a perfect idea of their locations.

Directly across the river is a sandstone ledge with a dip of eighteen degrees to the south, which was so easily quarried that the ancient builders were enabled to obtain slabs of good building stone with little trouble, and over the graves at this point are invariably found large slabs averaging about three feet in length, two feet in width, and from one to three inches in thickness. While the surveyor was mapping the ruins, and also upon the day following, we examined many of these graves. We found the sandstone slabs just over the skeleton and that they had protected the vessels. We took out perfect pieces of decorated pottery, slightly different from those obtained at Aztec and La Plata; yet the skeletons obtained here were in such a state of decay we were unable to preserve them.

While excavating, about thirty-six feet to the south of the central ruin we found a neatly walled shaft, the aperture of which was fourteen by fourteen inches. This aroused our curiosity, for chimneys were never used in the pueblos, and we could not explain the presence of this shaft running straight down from the surface of the earth. It was very hard digging, as we were compelled to take out many large sandstone slabs. At the depth of eight feet and five inches we reached the bottom of the shaft, which was paved with flat sandstone slabs. At this point the shaft turned at right angles toward the north, in which direction was the central ruin. The roof of the shaft, beyond the angle, was composed of oak logs, with here and there an occasional slab. It was two feet four inches in height and fourteen inches wide, neatly walled up, and entirely filled with earth and stones. The digging at this point was so difficult that we were compelled to hoist up the dirt in water buckets, using the horses' halters for ropes.

After following this shaft some four feet further we were compelled to abandon the work, but it is interesting to speculate upon its probable use by the ancients. It could not have been a chimney, for the stones showed no sign of smoke or heat, and the oak timbers over the lower shaft were not charred, although fragments of charcoal were occasionally found while excavating the place. Its probable use was for an air flue, or passageway for ventilation, but the latter supposition is rather doubtful on account of the narrowness of the main shaft (fourteen inches). We estimated that it would take three days' hard digging for four or five men to thoroughly excavate and investigate this curious place, and to determine without a doubt whether it was an air flue or passageway. If it was a passageway the people must have been exceedingly small in size, for none of our party was able to crawl through it, or turn the sharp corner at the bottom of the shaft.

At the depth of four feet in the shaft we found under one of the stones a tarantula, which we captured in a shovel and safely secured in a tin can. We wished to preserve it for our naturalist's alcohol tank. All went well until we arrived at our camp in the evening when some one accidentally upset the can and the tarantula escaped in the direction of the beds. One can easily imagine our feelings that evening as we rolled up in our blankets, not knowing when our escaped tarantula would appear and obtain his revenge, but, luckily, we saw no more of him.

It is a curious fact that coal was never used by these ancient people, as far as we can ascertain, yet not fewer than three outcroppings of good "peacock" coal can be seen from the ruins, the farthest not being



Skeleton and Pottery in a Grave.

more than a quarter of a mile away—while directly under the ruin the owner of the land has run a shaft in, about forty-six feet, from the side of the bluff, and by this means obtains all the coal that he can use or dispose of.

Beyond question it would pay some great institution like the Smithsonian or the Peabody Museum, for instance, to send a well-equipped survey to the Plata Valley. They would make connections and observations which would forever settle the questions regarding the origin of pueblo-building tribes. Brief as must necessarily be our stay in one place, we are ascertaining facts day by day which shall greatly aid the La Plata archaeologist in the future. We remain long enough to get a glimpse of the promised land, archaeologically speaking, to catch a ray of light now and then, but the great detailed work must be done by an expedition of several years' location in this valley. Our observations warrant us in venturing several suggestions concerning these people.

First; there is no similarity between these people and the Mississippi Valley mound-building tribes, as some have claimed. Their houses are substantial, while the Eastern tribes had no permanent homes. Their pottery is finer—it evinces art; the Mississippi Valley pottery is inferior. The Ohio Valley tribes worked stone implements better, but were inferior in other ways. When a race becomes sufficiently intelligent to construct a seven hundred roomed apartment house, with courts and assembly places, roofs and floors, with dressed stone and broken joints, they have passed from savagery into barbarism.

Second; their dwellings and burials are similar to those now in use among the Zuni and Pueblo Indians farther south.

Third; irrigating ditches, garden beds, the numerous mortars and pestles, are proof of an agricultural people. Agriculture, permanent homes, and peace go hand in hand.

The Spaniards, who found some of the pueblo houses during their march in search of the Seven Cities of Cebola, over three hundred years ago, report the inhabitants as peaceful farmers.

Fourth; they shunned the roaming Plains Indians, the fierce Utes, Navajos, and cruel Apaches.

As such people, they were a blessing to the Southwest; not a curse, as were the later Indians. We find them interesting because they were so different from the nomadic tribes surrounding them on all sides. We find them more human than their neighbors. When we consider the vast amount of labor expended upon their substantial homes, irrigation ditches, and garden beds, we accord them a higher place than that occupied by other American tribes of pre-Columbian times, north of Mexico.

When the builders wished to join two buildings or run a partition wall through a building and divide it into rooms, they did not "tie" the wall as we do, but simply built a straight-edged wall against the wall of the originally constructed house. That was their great error, and that is why so many of their buildings have fallen down. A straight-edged wall would naturally shrink from the main wall. Had they dovetailed or tied the wall, additional strength would have been given to the building. We have observed walls which were eight or ten inches apart at the top and barely came together at the bottom.

One point I would again emphasize; the ground here has been scratched over. Some well-appointed survey should undertake a thorough exploration.

APRIL 21.

On the 14th, Moorehead, Cowen and Guide Smith went over to Aztec with a ranchman. They intended to construct a boat and float down the Animas and then down the San Juan to Nolan's trading store where they would meet the rest of the party.

They reached Aztec in good time and hired a carpenter to help build the boat. It was 16x5 feet and made of two inch stuff, braced with scantlings. They launched it the morning of the 16th in the presence

perous. When we reached the settlement, tired, bruised and hungry—for we had lost nearly all our baggage—we thought to sell the boat for some \$20. It would cost the town double that sum to haul lumber from Durango and build one and our boat, covered by a deck, would make a serviceable ferry craft. The people came down to the river and laughed at us. I offered to take \$15 for the boat. Said one man, "I'll give you \$5 for it." Said another, "Take her with you overland."

By dint of labor, for it weighed about 2,000 pounds, we got stones under one end and then jacked up the other end until she was clear of the water. "Will you fellows buy her for \$15?" They would not and we filled the boat with dry wood and set her on fire. In 1897 when passing through Farmington I was told that the natives thought we were "bluffing" and afterwards regretted that they had lost so good a bargain. To return to Ralston's narrative.

Troubles were not over, however. The party hired a fool blacksmith to take them to Nolan's. He drove as far as Olio and backed out—was afraid of road agents, he said. At Olio they were delayed Tuesday by snowy weather and stopped at Stevens', a Mormon family. They treated the men very kindly, furnishing food and shelter.

Wednesday morning, the 20th, they set out with a Mr. Billups, who owned a good team. He talked at length about the Mormons. Moorehead's outfit reached the Mancos that night after a hard drive of thirty-five miles. Next morning, the 21st, they set out for Nolan's. Indians at the mouth of the Mancos were grinding corn with a stone roller and stone mortar such as are found about pueblo houses.

It was thirty miles to Nolan's and they reached there at 5:30. The hoys were rejoiced to see them and fired a salute in honor of a safe return. They were worried as the days passed and Moorehead did not appear.

CHAPTER XVII:

LA PLATA TO NOLAN'S.

of nearly the whole population. For two or three miles they proceeded in safety, with the exception of one or two halts on sandbars.

Then they entered very rough water and were put to no little trouble in avoiding trees and rocks. As was narrated in the article upon our trip sent in to *The American*, the three men nearly lost their lives during the passage, and could not be induced to make the trip again. They got as far as Farmington in the boat, and then setting it on fire, abandoned it.

Now, there is a story concerning the burning of the boat and it may be breviated as follows:

They had no ferry at Farmington. In 1892 the town was small and poor. Now it is large and pros-



Pictographs on the San Juan.

The party—with the exception of Moorehead, Cowen, and Guide Smith—left Camp Alfaifa on the Plata Friday, April 15, with the outfit, and set out for Little Navajo Springs, New Mexico, about fifteen miles distant. We traveled for about five miles down the Plata before striking the trail across the mesas. It was a surprise to us to note the ruins down the valley. We counted some forty in number in this short distance, but they were all of the same variety as those we had worked upon, although much smaller and in a more demolished condition. The trip across the mesas and foot-hills was interesting, and the scenery was beyond our expectations, the only dis-

advantage being the absence of water during the whole trip. We had learned by experience to supply ourselves with water, however, and had taken the precaution of filling our canteens and kegs.

We arrived at Little Navajo Springs in the middle of the afternoon and made our camp for the evening near the spring, which measures two feet in diameter, and is the only watering-place within thirty miles. The sole inhabitants found were half a dozen cowboys, a wild-looking set, all with heavy six-shooters strapped about their waists.

All around the Springs within a radius of two miles are ruins of small pueblos, but almost all of them have been dug into by the cowboys for the treasures they contained. The best preserved ruin is ninety feet long and ninety feet wide, but even of this little remains standing. We found near this ruin an ancient skull impaled upon a sharp post and in a good state of preservation. Later we learned that the skulls which the cowboys dug up in their search for relics were often put on fence-posts to keep away the Navajo Indians, who, from superstition, were afraid to approach them.

No tents were put up, and we slept around the camp-fire between our Navajo blankets, with the starry sky for a ceiling. While eating breakfast, a renegade Navajo chief, Costianno, visited our camp, and when the artist asked him if he could make a photograph of him, replied that he would not allow it unless he was dressed up with all his paraphernalia, two pistols in his belt, and his rifle.

Shortly after breakfast the start was made for the Mancos River, thirty miles distant. And the trip was a hard one—over rolling mesas, sand arroyos, deep washouts, canyons, with not a drop of water throughout the whole distance. It was a hard and long pull for the horses with the heavily-loaded wagons. We arrived at the Mancos River about half past eight o'clock in the evening, horses and men being thoroughly tired out. While encamped there we were visited by many Navajo Indians, although it was on the Ute Reservation.

During the night our nine burros disappeared. After riding under the hot sun for many hours, looking in vain for them, we found their tracks in the sand. In the midst of the trail were the prints of a moccasin, proving they had not wandered away of themselves, but had been driven off by the Indians, with the intention either of stealing them or of keeping them until we offered a reward. Just as we were about to give up the search we found them twenty miles from camp, with the bell missing from the leader. Glad of the recovery we drove them back to camp, tired and worn out, vowing to avenge ourselves if the chance ever offered itself. One Indian had lounged around the camp suspiciously during the day, and we obtained a photo-

graph of him. When the burros returned he could not be found, so we concluded that he had had something to do with the theft.

Bright and early the next morning we were on the road to Nolan's Trading Post on the San Juan River,



Buildings in Ruin Canyon.

and after a long and hard drive we arrived there and made our camp. Mr. Moorehead, Mr. Cowen, and the guide rejoined us, fatigued and hungry, and in such tattered garments that we hardly recognized them.

Here Ralston's entry ends and I pass to Mr. Gunckel's observations on the interesting geological formation about Nolan's and adjacent territory.

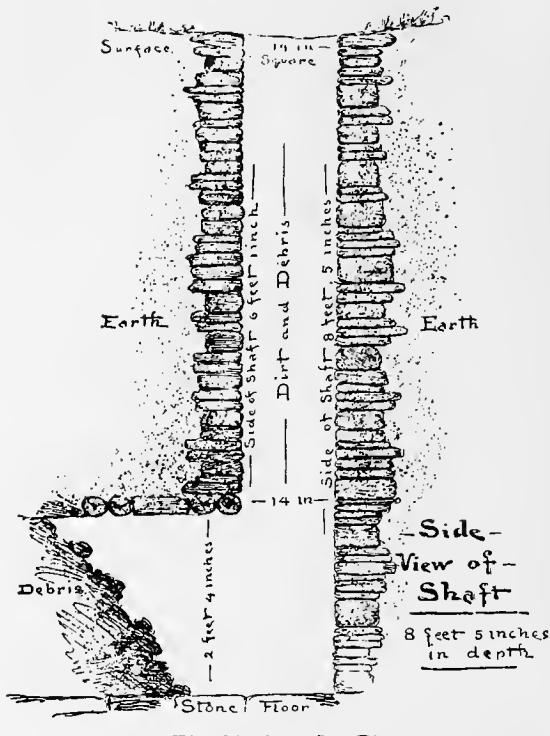
The scenery along the Rio San Juan is both picturesque and imposing. The river runs between high,

overhanging cliffs, or in dark and winding gorges hundreds of feet deep. In the distance are clusters of snow-crested mountain peaks looming up far above the surrounding cliffs and canyons. Our first camp on this river was two and a half miles west of the corner-stone of Colorado, New Mexico, Utah, and Arizona, and even at this point we were surrounded on three sides by cliffs almost a thousand feet in height, with the overlying gypsiferous red sandstone (probably Triassic or Jurassic) giving a banded and picturesque coloring to the whole.

About half a mile from our camp at this point, high up on one of the promontories, among the yellowish and whitish cretaceous sandstones and clays of the Dakota group, are hundreds of fossils exposed upon the surface. They are the most characteristic genera of the Lamellibranch, being of the oyster family, *Exogyra*, *Ostrea*, *Gryphaea*, and *Inoceramus* species of which occurred in the Jurassic period, but were more common and larger in the cretaceous. Some of these shells resemble the modern oyster-shell to such an extent that one could hardly distinguish them apart.

From this point, all along the San Juan until it empties into the Colorado, the geological features are the most interesting and instructive. The cliffs are so high that in general no undermining can set back the walls far enough to allow large alluvial plains along the bottom, even when the water is not too rapid; and when a channel is cut in granite, lateral water is always very small. The scenery as a whole resembles that of the canyon of the Colorado, which begins near where the San Juan empties into the Colorado River. This wonderful canyon between the meridians of 111° and 115° west has for the greater part of two hundred miles (as described by Newberry, and later by Major Powell and others) nearly vertical walls from two thousand to six thousand feet in height, made of carboniferous limestone and other paleozoic rocks, with, in some places, the bottom and the sides for the lower five hundred to one thousand feet of granite, and all the tributaries flow in similar profound gorges or chasms.

The Rio San Juan, however, has in general a fall of about fourteen feet to the mile, although in some places it seems to have double that amount. It is interesting to note how these cap-shaped peaks and cliffs are formed. In this the nature of the rocks and the positions of the strata play an important part in the erosion. The nature of the rocks causes modifications in the results of erosion, and if there are harder beds at intervals in the course of the stream, or any other obstacle to even wear, these, by thus resisting the erosion, become heads of precipices and waterfalls, while the height increases rapidly from the force of the falling waters, until some similar impediment below limits the further erosion. In this



The Shaft at La Plata.

way many water-falls and rapids are formed, and the stream is set back for some distance above a waterfall, and has in this part more or less extensive flood plains.

The positions of the strata have also a great influence, especially when they are horizontal. In this way the lateral wear in these gorges intersecting the horizontal beds, such as take place during the periods of floods, tends to remove the exposed lower layers, and in this way undermine those above, causing the latter from time to time to fall, and making a vertical or overhanging precipice on either side of the stream. The debris made by the fall is in many cases removed by the violence of the torrent.

These isolated tables, columns, needles, and towers, with the greater part of the formation being swept off by the erosion, tower up in majestic splendor far above the surrounding cliffs, and give to the scenery a weird and wondrous effect, which can be equalled in few places in the world. It is, in truth, Nature's Wonderland, with its cliffs, gorges, canyons, and crested peaks, with the river winding its way far below; and the view alone would amply repay any traveler who would journey to see it.

The curious carving along the cluster or line of crested mountain heights, with the summits thousands of feet above the plain around, is first formed

by the subterranean movements making plateaus of sufficient extent and elevation, and these, left exposed to the rains, in the course of time cause the curious crested tops. Mountains thus cut into shape by water are often called by geologists mountains of circumdenudation. This was first noticed by Hunton, who obtained his ideas from the Scotch valleys and mountains. He says: "When strata of like durability have considerable dip, erosion commonly results in sloping surfaces, unless the rocks are so hard as to keep themselves in protecting ledges. But if there is a stratum of easy removal alternating with others harder, as, for example, a stratum of limestone among other kinds of metamorphic rocks, it is apt to determine erosion and make a valley along its course which will be the course of the strike, and also to make, through consequent undermining, a high, precipitous, and often rocky slope on the side toward which the rocks pitch, and a gradual slope on the other; that is, if the dip is westward, the west side will commonly be the high, steep side."

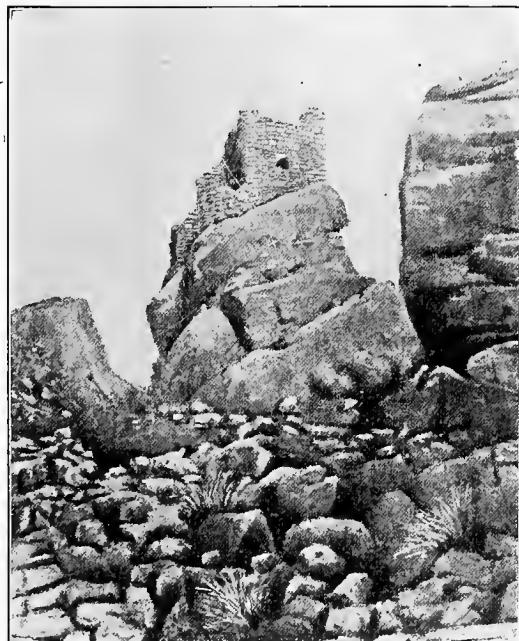
This principle is illustrated in many parts through the canyons and gorges along the San Juan.

CHAPTER XVIII.

RUINS AND PICTURE-WRITINGS IN THE CANYONS OF THE M'ELMO AND MOVENWEEP.

That strange, weird river, the San Juan, dashes madly past our camp. Where it runs through the rapids its roar can be heard at a distance of two or three miles. Full of quicksands and large rocks, one scarcely ventures near its brink, save when sure of one's footing. On either side of the river are great cliffs of sandstone, worn into fantastic shapes by the combined action of the water, sand and wind. The Indians well named it "The River of Demons."

The expedition arrived at Camp McElmo, situated at the junction of McElmo Creek and the San Juan, Saturday night, April 23. No little difficulty was experienced in getting our heavy baggage through the intervening canyons. We are now past the point where roads exist and have nothing to follow but Mormon or Indian trails. In these trails are washes anywhere from three to fifty feet in depth, with rocks varying from a few pounds in weight to several tons. The washes are full of sage bushes and cactus. It is comparatively easy for Indian ponies to pick their way over such trails, but it is next to impossible for horses to draw wagons, even moderately loaded. Our two teams strained every muscle in their attempts to pull the heavy wagons over the rough roads and washouts, but they overtaxed their strength and we were compelled to engage a third team at one of the trading stores to help us through to McElmo. The roads were so



Boulder Castle.

heavy that time and again the members of the expedition had to put their shoulders to the wheels and help the wagons out of some deep hole. The tough and wiry burros trotted over such ground with ease. An Easterner would be surprised at the strength these diminutive beings possess. The packer places about 175 pounds on each beast and they are capable of traveling all day over any kind of ground. Whenever we stopped for dinner the burros would lie down for a short time and then go to grazing.

Just opposite our camp is a small cliff ruin of some five or six rooms. Straight across the river and the intervening flat the distance to the ruin is about six hundred yards. At this season of the year the river is very high and swift and there is no boat to be had within twenty miles, so we were compelled to look at it from a distance without being able to examine it.

Early on the morning of April 26, six of our party, including the guide, with our pack burros carrying our instruments, cameras, and provisions, started up McElmo creek from our camp on the San Juan. The canyon at its mouth is about three-quarters of a mile wide, with its weathered sandstone cliffs slanting up on each side to the height of 250 feet. The view is wild and picturesque, not a sign of life being visible except an occasional Ute or Navajo Indian, a few birds and rattlesnakes, and countless lizards of various sizes and colors.

For the first three miles we traveled without observing ruins, and then we came upon a small valley ruin about a quarter of a mile from the river, but it was demolished to such an extent that little could be made out of the fallen stones, except that it contained three small rooms. From this point for eight and one-half miles we did not observe any ruins. Then we saw a little dwelling placed high up on the side of a cliff. It was over 100 feet from the bottom of the canyon and contained only one small room, four feet high, ten feet wide, and seven and one-half feet deep. On the right hand side of the cliff house we found some picture-writings. They were in the shape of crow's feet and seemed very old. The crow's foot has been noted quite frequently among pictographs. When about nine miles up the canyon we noticed many rock shelters; queer little places for human beings to live in, but yet very good shelters from the rain and snow. These occur at intervals of a half a mile or so all along the creek, some of them being very interesting on account of the picture-writings on the sides of the sandstone boulders under which they were constructed. The most remarkable of these is about one mile east of the junction of Hovenweep and McElmo creeks. It is a large cave-shelter with the remains of a tower on top of the boulder. One side of the rock was literally covered with picture-writings and signs. The human form, deer, goats, lizards, snakes, bears, turkeys, and many other birds and animals are plainly distinguishable, while intermingled with the figures are many pictographs. Although it seems impossible to read these rock inscriptions, or even to conjecture to any extent their significance, yet they certainly have a meaning and represent some idea or event in the past history of the writers. They are valuable, nevertheless, if only as showing the stage of culture which was reached by these unknown tribes. That they were of the same age as the cliff-dwellers is very probable, for we have found them in many cliff dwellings and cave-shelters, having sketched as many as thirty different sets in this neighborhood.

The most important of the symbols cut in these rocks is a Swastika cross, measuring seven inches in height and six inches in breadth. Around it are many curiously shaped figures, some in the shape of figure eights, some shaped like dumb-bells, and several representing the human hand. The occurrence of the Swastika cross in this section of the country is a most important and significant fact. Swastika crosses of beaten copper have been discovered in an Ohio mound. Their occurrence should not be considered accidental. If other Mexican and Central American designs are found, we will incline to the belief that the cliff inhabitants were familiar with

the customs and religion of the more cultivated nations further south. Yet we would not venture the assertion that they were a part, or even connected with them. It is more probable that as the cliff folks were great travelers they may have brought back the Swastika symbol from excursions into Mexico. The Messrs. Wetherill informed us of the existence of the Swastika on several pieces of pottery found in the Mancos Canyon ruins. The cliff upon the face of which the crosses are carved is sixty feet from the bottom of the canyon.

The exact location of the cave-shelter containing this group of picture-writings is as follows: About 100 yards west of the McElmo Creek, and about one mile east of the junction of the Hovenweep and McElmo creeks, the elevation being about seventy-five feet above the river. The shelter is almost ten feet wide; eleven feet deep. The figures were impossible to photograph on account of their high position between the sloping rocks. In every case the figures were cut into the sandstone rock on the under side, where they would be protected from the weather.

About the mouth of the Hovenweep the sides of the mesa are covered with large boulders, and the smooth flat surfaces of these huge blocks offered a tempting tablet to the primitive artist. This region we also found very rich in ruins, although for the most part in bad condition. The most important is a double walled tower standing at present about six feet high, and having an outer diameter of thirty-five feet. The inner diameter is twenty-four feet, thus making the walls of the tower five and one-half feet apart. Between these two walls the space is divided into many small rooms.

Immediately to the north and west of this tower is a series of walls and ruined buildings, the whole covering at least two acres, but the walls and buildings have fallen down to such an extent that it is impossible to present a map of them. One important feature is a deep cave which was originally protected by a series of walls. This cave goes down slantingly to the river which is fully 150 feet distant, and seventy-five feet below the mouth of the cave. The cave was probably made originally by the water washing down through the cracks in the sandstone ledge from the top of the mesa to the river, but was afterward utilized by the ancient people as a passageway to water.

Certainly it was used in times of warfare with other tribes, for the entrance at the mouth of the cave is so hidden by the ruined walls, which had protected it, that one passing by would hardly notice it.

It is seldom, indeed, that one finds a cave of such depth in the midst of ruins in this locality. It

*Pictographs in Yellow Jacket Canyon.**The Twin Towers.*

was the only one we found or ever heard of, and for this reason we were especially interested in it. After some trouble and risk we were able to descend almost to its end. Fragments of pottery were found at different points in the cave. Over the cave is a room containing eight or nine rooms.

Our camp was pitched near the mouth of Hovenweep Creek, near the boundary line between Colorado and Utah, and from this point we worked toward the northeast. A half mile from the junction toward the north we found an interesting valley ruin, like those we have described in New Mexico. It was rectangular in shape, 100 feet long and seventy-five feet wide. At present it is nothing but a huge pile of fallen stones. About 200 yards west of this ruin we found a circular tower in a good state of preservation. It was built of heavy masonry standing six feet in height, with a diameter of seventeen and one-half feet. It had evidently been several stories in height, and from its position would have served as an excellent signal or watch tower.

Directly west of this tower rises the high perpendicular mesa, the top of which is difficult of access and contains some very interesting remains. From the scarp of the sandstone mesa large boulders have fallen and rolled in every direction. Under many of them can be found the rock and cave-shelters before spoken of, and almost invariably accompanied with the strange-looking picture-writings. Upon gaining access to the top of the mesa we found it perfectly level and measuring about 320 feet in width. At a distance of 650 feet from the south end a wall four feet in height runs across it. The wall is of peculiar shape, being divided into seven parts, each running at an angle of fifty degrees from each

other, thus forming a veritable fortification, and looking like some of the rail fences of the present day. From this wall toward the south end of the mesa the ground is in many places divided into squares and rectangles, in appearance not unlike graves, the sides being formed of flat slabs placed on the ground edgewise. In the center of the mesa is a circle formed in this manner, with the slabs all pointing toward the center, the diameter being thirty-seven and seven-tenths feet. In the center of the circle is a circular depression about a foot in depth with a diameter of nineteen feet. A short distance west of this circle is a smaller one, greatly resembling the other, measuring fourteen feet in diameter.

At the first glance the top of the mesa greatly resembles a modern graveyard—with its squares, rectangles, and circles—but in excavating no bones are found; in fact, nothing but some pieces of charcoal. On this sandstone ledge we discovered immense water-holes of clear, cool water and hailed the discovery with joy, for the water we had been compelled to drink for the previous month was so laden with a solution of mud and alkali that one had to be very thirsty to drink it at all.

Three-quarters of a mile east of the mesa and about two miles from the junction of the Hovenweep and McElmo, situated in a weird and picturesque locality among the large rocks, stands an interesting ruin which we have named Boulder Castle. Looking at it from the south it has an imposing appearance. The boulder itself is about fifty feet high. On its summit lie the remains of a large tower, while built around the bottom are several well preserved rooms. The boulder has three weathered holes in its side giving it the appearance of a human face, two of the

holes forming the eyes and the other the nose. After chiseling some holes in the rock we climbed to the top and measured the tower. It had been divided into two rooms, the wall now standing about six feet high. It is sixteen and one-half feet long and thirteen and one-half feet in width.

The small houses underneath the boulder are neatly walled up. The one on the western side measures seven feet in length and seven feet six inches in breadth, three feet three inches being the height.

A glance at almost any ruin in this immediate locality shows plainly that the main object of the building was the idea of protection. But we must confess that they showed almost unerring judgment and quick perception in choosing almost inaccessible locations for their dwellings, and high promontories for their signal and watch towers.

Ralston's entry in the log-book is worthy of preservation. The dance was of no ethnological significance, and was given, I suppose, to "work us" for provisions.

Monday, the 25th, it took all day to find the burros. The Indians held a dance at the store and we went down. The chief objected to the use of the cameras and Lane and Gunckel took them inside.

Upon nearing the traders we saw the Utes all grouped about the store and as we came up we observed four or five dancing, while five or six others sat cross-legged on the ground beating upon an empty drygoods box with sticks, all the while keeping up a monotonous chant. Lane and Gunckel immediately made ready to take a photograph with their cameras. In a second a tall and finely proportioned brave, whom we afterward found out was the chief, leaped toward us, motioning that the cameras be taken away and at the same time stopping the dance. The cameras were taken inside of the store, and there with the aid of the traders as interpreters, we held a long argument with the Indians, trying to induce them to go on with the dance. They claimed they would all die if their pictures were taken and seemed to be very superstitious about it. Moorehead finally offered them two sacks of flour if they would continue and allow photographs to be taken. They said they would talk it over. Meanwhile we stepped outside. Some bucks had an iron bar weighing about 25 pounds and were seeing who could throw it the farthest. Cowen took the bar and threw it about two feet farther than any of them. Some of the boys would hold it out at arm's length and then the Indians tried to do likewise. In other athletic feats did we contest with them. In jumping Ralston outdid them all.

By this time the Utes had agreed to continue the dance. They donned their finery, put bright feathers in their hair, and each carried one in his hand. They

also bought some yellow and green paint inside the store and smeared it all over their faces and bodies. As the musicians struck up, they jumped into the ring, led by the tall chief. They darted hither and thither, now bending low, now straightening up, hopping first on one foot and then on the other, every little while holding aloft the feather in their hands, and yelling at the top of their voices. Their antics made us laugh heartily. Several good photographs were secured and we left about 5 o'clock greatly pleased with what we had seen.

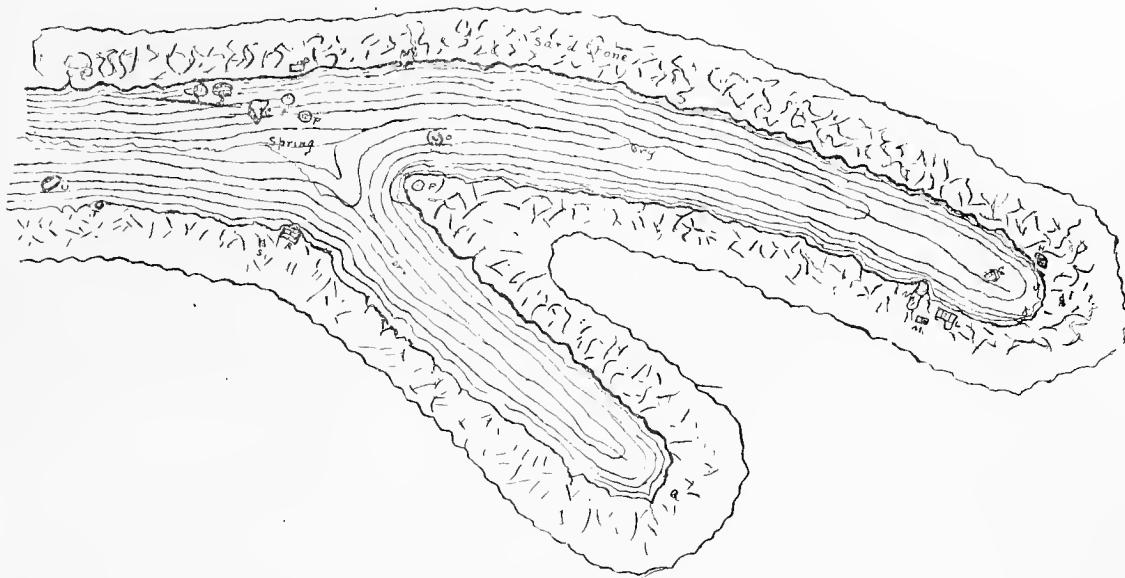
CHAPTER XIX.

THE GREAT RUINS OF UPPER M'ELMO CREEK.

After having examined the ruins and hieroglyphics of Yellow Jacket and Hovenweep canyons, the survey moved up the famous Ruin Canyon for a distance of ten miles. This canyon is one of several which branch from Upper McElmo Creek, and have been known only to wandering cowboys and Indians. The Weatherills, a family of several brothers, were recently through the canyon with Mr. H. Jay Smith. But our survey was the first to attempt to examine the extensive ruins thoroughly.

The gorge containing the ruins forks at its upper end, and the ruins themselves occupy the northwest branch and a few hundred yards of the main canyon just below the forks. There is only one large ruin in the northeast fork, which is at the head of the canyon. Mr. Cowen's map, made from a careful survey, gives the exact location of each one of the towers, dwellings, and cave-shelters.

The canyon containing the ruins does not average more than seventy feet in depth from the mesa on either side. It is not very wide, yet a wilder place could scarcely be imagined. Great crags of sandstone jut out on either side, masses of rock have detached themselves from the walls and tumbled into the gorge below, a dense growth of sage-brush covers the bottom, while the topmost ledges hang out for many yards, thus forming natural caves. The inhabitants of the canyon took advantage of the inaccessible nature of the gorge and constructed three kinds of buildings therein. First, large towers with very thick walls; these were placed upon commanding positions. Second, compartment houses, or small pueblos, which were built so as to be protected by the towers. Third, cave dwellings and cave-shelters. The former were well constructed and consisted of one or more walls, inclosing a natural cavern in the rock. The latter were very primitive indeed. It seems that many of the inhabitants of the valley had lived in natural caves or in the great hollows formed by one large flat rock resting upon another. Occasionally small walls were built on the most ex-



Map of Ruin Canyon.

posed side, but more frequently the rocks alone formed the walls and roof of the habitation.

This group of ruins is so important that it necessitates a detailed description. Beginning at the east and running west, we have lettered the more important ruins on the map. The small and dilapidated ones, to the number of about thirty, are not lettered. The first ruin in sight is a large tower lettered "A." As one approaches it, another tower (lettered "B"), standing alongside of "A," is observed. These two towers have been named "The Twins," on account of their similarity. They are both built on large oblong sandstone boulders just below the edge of the cliff. "A" is sixteen feet high, and nineteen and three-tenths feet across at the base. The rock upon which it stands is twenty-four feet high and forty-eight feet in length. The tower has no windows, and the only entrance to it is a small door, two feet in height and one and one-half feet in width, at the bottom of the tower on the eastern side. As in the case of nearly all the towers of this group, one side is square and the other rounded. It is really a combination of a square and a circle. The masonry is excellent, sandstone blocks, averaging fourteen by five by four inches, having been used in its construction. The several towers similar to "A" and "B" were manifestly designed for defense, for on all sides are small loopholes about three or four inches in diameter. Those in the lower story point directly outward, those in the second slightly downward. All the loopholes are smoothly plastered with adobe, so that an arrow or spear could be discharged easily.

Tower "A" consists of four rooms upon the ground

floor. Toward the east, the room in the square end was four by four by two and seven-tenths feet. The central chamber was seven and one-half by six by four and three-tenths feet. The two rooms in the west of circular end were seven and six-tenths by six and three-tenths feet. A fissure separates the rock upon which "A" stands from the main cliff.

Tower "B" is now two stories in height, the third, or upper story, having fallen down. It is twenty-one feet in height at present, its walls fourteen inches in thickness, and its diameter at the base is twenty-one and four-tenths feet. A fissure, eight feet in width, separates it from the main cliff. It was originally divided into six rooms upon the ground floor. The rock upon which the tower was built stood thirty-four feet in height. Just underneath the base of the tower, atmospheric agencies in past ages cut out a small cavern some fourteen feet in width and five feet high. Primitive man took advantage of this and constructed two small cave dwellings. Numerous loopholes were observed in tower "B."

Stronger habitations could scarcely have been constructed by these people, even had they more improved implements with which to work. When one considers that all these thousands of sandstone blocks were hewn out with stone tools, and fashioned into buildings by primitive masons; that doorways and windows and loopholes were accurately and neatly and substantially constructed, one justly accords the builders a degree of architectural skill excelled only by races of other lands who had the use of metal and the communication of thought by written characters. In these towers there is but one en-

trance to each room. The entrances are usually toward the canyon or, as in the case of towers "A" and "B," toward the edges of the boulder highest from the ledge below. This would necessitate the use of small ladders, which the builders could draw in and thus prevent their enemies from entering rapidly. That is, entrance could be forced to many of the towers without ladders (as we climbed in), but some time and care would be required to scale the cliff, and the occupants would have abundant opportunity to repel a number of invaders who were without ladders. The rafters in all the towers are in the last stages of decay. Scarcely half a dozen in the entire series of buildings extend across the rooms.

Hollow boulder "C" stands opposite the junction of the two upper canyons, and is thirty-nine feet long and twenty feet high. The rock leans somewhat, about eight degrees. Within the boulder is a hollow eighteen by seven and eight-tenths feet. The cave is walled and divided into two rooms. The outer wall has fallen down and the inner room alone remains standing. This cave dwelling is in a bad state of preservation, and the original shape of the entire dwelling can not be determined at present. There are the remains of a tower on top of the boulder.

Square Tower "D" stands upon the topmost ledge directly opposite the point, the dividing ridge between the canyon forks. The entrance faces the canyon, and the building stands twelve feet in height, twenty-one and three-tenths feet east and west, and ten and eight-tenths feet north and south. There are no windows, but numerous loopholes. The masonry

is only fair. As the entrance is three or four feet from the edge of the canyon, an enemy could easily gain access; so the builders constructed two walls, several feet in height, at each corner of the building nearest the canyon. The building commands the unprotected boulder dwelling below. There are at least twenty loopholes in the walls.

Ruins "E" and "F" are half-way between the top and the bottom of the northwest canyon. Both of these are dilapidated and are not of special interest.

Square Tower "G" is the tallest tower standing. It was built upon a boulder ten feet high, sixteen feet wide, and twenty feet long. It originally had four stories, three of which are now standing. The tower tapers at the top. There are no loopholes in the lower story, quite a number in the second, and very many, indeed, in the third. We are convinced that it was the most important position for defense in the entire group. The fourth story would command the plain above. Even should the enemy succeed in eluding the other towers, they would be unable to pass this one in safety. Should any of the defenders become wounded, they could descend into the lower story and be perfectly safe. The doorway is T-shaped. Many of the entrances to the building are of this peculiar pattern. A similar preference in constructing doorways has been noted in the ruins of Mexico and Yucatan. Possibly it has some symbolic significance. The masonry in the tower is second only to that of "L" and "N."

As will be seen from the map, ruins "G" to "N," inclusive, are all bunched together in the head of the canyon. It seems to have been a preferred spot for dwellings and, consequently, a very vital point to be defended. The water has washed out a great cave, marked on the map "K," in the north side of the canyon, and a smaller one in the northwest end of the canyon, marked "J." Tower "G" splendidly commands both of these. Upon the mesa, extending back for twenty or thirty yards from the edge and following the curvature of the head of the canyon, is a good-sized pueblo ruin at present almost entirely destroyed. Buildings, marked "H" and "I" upon the plan, protected the two sides of the pueblo next to the mesa. "H" stands fifteen feet high and thirty feet at the base. "I" stands eleven feet high and fourteen feet at the base. Both of them have numerous loopholes. Great piles of debris surround the base and follow the curvature of the canyon for 130 yards. Where the walls have fallen one can trace circular and square rooms to the number of forty or fifty. Rectangular rooms are also discernible.

Descending to the bottom of the canyon, we find cliff house "J." The boulder outcrops ten or twelve feet. A wall has been built across the mouth of the opening, and a small but secure dwelling thus



Dinner.

*Into the Desert.*

formed. The doorway is about the smallest we encountered. An examination of the interior of this dwelling resulted in the finding of ashes, pottery fragments, and bones, covering the floor. Most of the cliff houses have been occupied until fully eighteen inches of debris covered the stone floors beneath. One of the men was set to work excavating in several of these chambers. He found nothing of importance. Roving bands of Utes and Navajos Indians have gutted nearly all these ruins. The post traders pay the Indians for such pottery, axes and arrow-heads as they bring in, hence the vandalism is encouraged.

At the point marked "K" the cavern in the canyon is 150 feet in length and twenty feet in height. The wall above hangs over at least twenty feet. The cliff-dwellers constructed within the friendly shelter thus afforded a large compartment dwelling of nine rooms. Each room was small, but taken together they covered an extent of about sixty feet, fourteen feet in height, and sixteen to eighteen feet in depth. The walls dividing one room from another, and also the front walls have nearly all fallen down. There is a trace of one T-shaped door. The stones used in constructing the room are much smaller than those found in the towers. The base of the cliff rooms are fifteen feet from the bottom of the canyon. Quite long ladders were required in gaining access to them.

Dwellings "L," "M," and "N" are three of the largest and the most important ruins in the entire canyon. "L," in particular, is splendidly preserved, and comprises the best architectural skill displayed in any of the buildings which we have attempted to describe and illustrate. The stones in it are all neatly trimmed and well laid. The three ruins stand directly upon the edge of the cliff. On the canyon side "L" is thirty-nine feet long and is divided into five rooms. On the side of the mesa there are four rooms. Two and a half stories are standing, and

about one and a half have fallen, making its original height four stories or twenty-six feet. There is but one doorway, and that faces the canyon. It is twenty feet from the steps, cut in the face of the rock, to the canyon below. As in the case of the building previously mentioned, a very long ladder must have been used to gain access. The circular end is toward the east. There are loopholes pointing so directly downward that a man standing at the base could be shot by those within. The walls are a trifle over fourteen inches in thickness. "M" and "N" are fortified compartment houses, comprising a total of twenty-six rooms. They were once connected. A high semicircular tower stands on the east side or toward the mesa. One of the larger rooms in this was cleaned out and examined. It had been used for many years, and the bed-rock was worn smooth by the long occupation. Bushels of ashes, pottery fragments, several mortars and pestles, and a large stone axe were found in the debris. The walls of "L," "M" and "N" are three feet thick at the base but taper toward the top. In a certain portion of "L" it appears that the wall was broken through, either by an enemy or for some unknown purpose, and afterwards repaired.

Tower "P" is on the point where the canyon divides. It is circular and only one story in height, although it commands a very important position, and stands on a high boulder. It is in a badly decayed condition. The loopholes command the whole canyon. Tower "O" stands upon a high boulder about half-way down the side of the canyon. It is thirteen feet in height, or fifty feet from its top to the bottom of the canyon. But one side is standing. In order to get the altitude it was necessary to climb to the top of this frail, tottering wall. This feat was accomplished not without considerable risk, for one could look straight down the side of the boulder to the canyon below. The wind was blowing a gale,



Square Tower "G."

and that, together with the weight of the man, made the old wall vibrate perceptibly.

"S," "T" and "V" are small ruins in a bad condition. "R" is a good-sized compartment house standing originally two stories in height, on the edge of the cliff, and having six rooms upon the ground floor. It is thirty-three feet in length and nineteen feet in width. There is one small separate room joined to it, nine and two-tenths by eight and four-tenths feet. As in the case of "S," "T" and "V," it is upon the north side of the main canyon below the fork.

"U" is a very strong compartment house, or castle, built upon a huge boulder, slightly below the main cliff on the north side. It is separated from the cliff by a fissure thirty feet in width and twenty-five feet deep. The rock has a slope or dip toward the south, of eight degrees, and toward the east of about the same. The house upon it is thirty-nine feet long, nine feet wide, and fifteen feet high. It was divided into four rooms and was about as inaccessible as any one of the ruins. This castle, standing so high upon its foundation, caught the first rays of the morning sun. It formed a beautiful background for our camp, which we pitched near it, alongside of a small spring.

Some important facts concerning the ancient dwellers in the San Juan Valley, properly known as the cliff-dwellers, are deduced from this group of

ruins. First, the ruins are miles from any other group. Second, the soil about them is not tillable. Third, there is no indication from the Lower McElmo that such a body of ruins exists at its head. Fourth, the character of the buildings indicate that they were constructed for defensive purposes. Fifth, we were unable to find a cemetery or burying-ground accompanying the ruins. Sixth, so far as we are able to judge, the ruins do not mark the existence of a people greatly different from the pueblo dwellers the Spaniards found living in this very region in the sixteenth century.

With reference to the ruins themselves, they mark the existence of a considerable village. When that village was inhabited we are unable to say. We are inclined to the opinion that it was abandoned several centuries ago. In support of this theory, we would offer the following facts: Many of the ruins are tumbled down, some of which scarcely a vestige remains. A great many of the stones used in the walls have been taken from other buildings, because they are covered with mortar on the outside or show redressing. The wind has shifted great banks of sand about the base of many of them. The stones show great weathering and many of the steps, cut in the sides of the canyon to lead to the cliff houses above, have been almost entirely worn away by the action of wind and sand.

The ground in the canyon and upon the surrounding mesa is strewn with arrow-heads, pottery fragments, and implements and utensils used both for hunting and domestic purposes. The total number of rooms in the entire series is not far from three hundred and twenty. It will, therefore, be seen that a considerable population was supported at this place.

Upon coming up the valley the ruins present a very striking appearance. High up upon the cliffs or upon isolated boulders, they stand out in strong relief against the sky. They seem all the more important because of their division into two groups. Each ruin is a fortress in itself.

The pueblo dwellings are scattered broadcast throughout all the fertile valleys of the San Juan. The mound builder villages and enclosures of the Ohio Valley are also scattered over a great territory. The cliff inhabitants' dwellings are located in villages at the head of narrow, deep, and barren gorges. One naturally asks why the builders did not follow the customs of other aboriginal tribes. It is apparent that they were pursued and hunted to the death by savages from a distance, and were, therefore, compelled to seek out these inaccessible homes. It may be asked, "If the canyons were barren, upon what did the inhabitants subsist?" Mr. Gnnckel's article upon the hieroglyphics will answer this question. When a barbarian makes pictures he naturally portrays those things, or

animals, or other forms of life with which he is familiar; in fact, it would be impossible for him to do otherwise. So that when we see hundreds of figures of Rocky Mountain sheep, turkeys, etc., in the groups of picture-writings, we naturally conclude that he captured these and others. The Messrs. Wetherill have found great deposits of turkey dung and bones in the cliff houses, and they firmly believe the inhabitants domesticated the turkey. In Ruin Canyon, at present, nothing could be raised, but at one time the stream may have been large, or there was a continuous spring—or there may have been other conditions obtaining then of which we are not aware in these modern days.

Beans, corn, squashes, melons, etc., could be had by barter from the larger villages of the same people in the Mancos Canyon, forty miles away.

It is very strange that no cemetery was found near the ruins. Possibly continued trenches in various directions might reveal it. Our stay in the canyon was necessarily of brief duration, and excavating on a large scale was entirely out of the question. When some of the members of the present survey were at Fort Ancient in Ohio, a few years ago, the burial ground of the people who constructed the earthworks was not discovered until after weeks of patient digging. If the same measures were observed in Ruin Canyon we are confident that the archaeologist would reap a large reward.

The pueblo builder and the cliff-house builder stood on an equality as regards architecture and pottery-making. The pueblo inhabitant was a superior tiller of the soil, the cliff-house resident a superior warrior, possessed of some idea of the principles of fortification and of the best means for defense. The inscriptions upon the rocks can not properly be called hieroglyphics, but partake more of the nature of pictures such as the Indians of the plains were wont to make upon buffalo hides, giving an account of the exploits and history of the heads of certain clans. If we mistake not, the Bureau of Ethnology has advanced similar conclusions, based upon the careful studies of its various representatives in the field.

Our conclusions do not necessarily imply that the cliff houses are of recent date. Many of the pueblos are modern, but the cliff dwellings themselves have every appearance of age.

There is a great opportunity for the student of archaeology in the McElmo Canyon, but he should not fall into the error of a romancer, and attribute virtues and abilities to the aborigines above those which they really possessed.

Following in the footsteps of this survey, some institutions should send a party of competent archaeologists to open cemeteries, collect implements and utensils, and follow out in detail the plan we have already outlined.

Then will the life of the ancient dweller in the San Juan Valley be fully appreciated and understood. Hasty travelers and relic hunters have already done an immense amount of damage in connecting these people with the Aztecs on one hand or the mound builders on the other.

A few side-lights from the log-book here follow:

APRIL 29.

Moorehead and the cook with more provisions arrived in the afternoon. They also brought the mail from Bluff City. It was fortunate they arrived when they did as we had nothing to eat except bacon and coffee, not expecting to be out so long. A nest of rattlesnakes was found in one of the ruins. Ralston shot one and the others were stoned to death.

APRIL 30.

We were early to work. Moorehead and Gunckel taking notes, Cowen surveying with the help of Ralston and Longnecker, Lane photographing and Matthews and Smith digging out one of the buildings. It was no easy task to measure the ruins. They were generally situated so we had to climb to them, edge along the side of the cliff, or climb the shaky walls to get at the height. Several more rattlesnakes were seen to-day. It seems to be their favorite haunt about these fallen ruins. Mr. Wetherill says he has found mountain lion tracks in the ruins of the Mancos Canyon.

MAY 1.

We got through sooner than we expected and pulled out for Camp McElmo on the San Juan, 25 miles away. There were only four horses and they were needed to drive the burros, so Moorehead, Cowen, Gunckel, Lane and Ralston were compelled to walk the distance. The way is very rough down the canyons and the only path or road is a faint Indian trail. We finally reached camp late in the afternoon, tired, hungry, and generally worn out.

MAY 2.

We set to work on our notes, Cowen on the map and Moorehead, Gunckel and Ralston on the article.

The Indians are always thick about our camp, both Utes and Navajos. They come into the tents without any invitation whatever, sit down, pull out some cigarette paper, and ask for tobacco. They will also gather around the fire, spread out a blanket, pull out a deck of greasy Spanish cards, and gamble for Winchester and Colt cartridges by the hour. The typewriter is another great curiosity with them. They will get down on their knees to see the type work, and every time the bell rings, grunt and look at one another. They say it is "Heap bad medicine, heap talk!"

CHAPTER XX.

ACROSS THE DESERT.

We were preparing to leave for Bluff City, and had packed most of our outfit, expecting to start early in the morning.

The San Juan River was unusually high, and its tawny waves dashed against the bank scarcely forty feet beyond our tent. In the early morning we had noticed that the river was within two feet of the top of the bank, but did not suppose that it would rise sufficiently to compel us to move.

About supper time the cook went to the stream for water, and upon his return informed us that four inches more rise would bring the water on a level with the ground occupied by our tents.

We had built a large fire, and were sitting about it, smoking and telling stories. The guide had been relating one of his bear stories. We were not inclined to take much stock in the guide's stories. He had told us a great many, in fact, too many for the region, as very few bears had been seen by the hunters in the last five years.

The tent occupied by the teamster, cook, guides, camp-boy, and Mr. Rowley, was pitched much nearer the river bank than the supply tent and the one in which dwelt the remainder of the party.

The camp-boy had withdrawn from the fire some time before. As we were having an uproarious time, joking the guide about his experiences with the grizzlies and the silver tips, we were suddenly confronted by the camp-boy, scantily attired; he was greatly excited, and as he ran toward us he cried: "The bank is caving in just back of the tent!"

We all ran to the scene of the accident and found the water dashing over the ground so near the back of the tent that unless something was done quickly Rowley would lose his birds and animal skins and his bedding. We jerked down the tent as quickly as possible, and carried canvas and contents to a place of safety, some two hundred yards away. The men were ordered to throw up a bank around the other two tents. This engaged the entire force for something more than an hour. We rolled the cook's wagon on to a knoll four feet in height, and then all hands turned in with the expectation of rising about five o'clock.

The San Juan was not content with making us move one tent. The day had been very hot, and the melting snows in the mountains swelled the stream higher and higher. It crept up, inch by inch, and about midnight the waves covered a piece of low ground alongside our tent. As the San Juan rises, the waves get higher. The river carries more sand and mud than any other stream in the country.

It has never been satisfactorily explained how the "sand rollers" start in this singular stream, but we

know, from personal experience, that sometimes they reach a height of three or four feet. Whether the wind blows or not seems to make no difference.

It was about midnight when a wave about two feet high got under full headway and swept inland, drenched the bottom of our tent, and flooded the ground outside the embankment. Some of the water dashed over the little levee we had thrown up, and found its way inside. Of course, everyone woke up



Difficult Work.

instantly, and rushed outside. The first man out, upon stepping over the embankment, found himself in about a foot of water.

Then there was a commotion! We carried our clothes, valises, and blankets to the cook's wagon, and, returning, pulled down the tent and stored it on top of a deserted Indian clay lodge near at hand. The supply tent was not safe either, and we had

to take that down and carry all the heavy boxes of canned goods, specimens, trunks, ropes, etc., two hundred yards back to a hill.

There was no more sleep for us that night and we passed a very cheerless time waiting for daylight. The cook said he would warm us up and prepared one of his famous camp stews. Two or three spoonfuls of extract of beef are supposed to be put in a large kettle of hot water, but this dilution was never sufficient for the men of the survey. No matter how strong the extract might be, they preferred solid matter to liquid. So the cook was in the habit of pouring a can of corn, one of tomatoes, and fifteen or twenty peeled potatoes into a pot along with the extract, and such other odds and ends as he had in the larder. To a man out of camp this would hardly be palatable, but it suited us first rate.

After such a stew had vanished down the throats of eleven hungry men, the wagons were loaded and the burros packed and we set out over the sand desert separating Gillett's trading store from Bluff City. This was the worst trip we had in the course of the expedition. We disabled two horses, came near losing our camp-boy, and suffered greatly from thirst. The distance was only twenty-two miles, yet we were two days in making it. I can give no better idea of the great difficulties experienced in traversing the San Juan country than by describing our journey mile by mile.

The men in charge of the trading store have to haul their freight from Mancos. The road lies near our camp, and is frequently traveled by the traders. Therefore we had an easy road of it for a mile and a half. From the store to Bluff City there is a trail which the Mormons occasionally use when it becomes necessary for them to visit Durango. But as they raise nearly all their own commodities, and make their own clothes, they seldom have intercourse with the outside world.

One mile beyond Gillett's store the trail crosses a small creek. The creek is filled with quicksand. You can stand on a flat, tablelike surface of grey compact sand, and if you jump up and down a little, the whole mass will shake and quiver like an enormous bowl of jelly. If you keep on jumping, the soft, pliable crust covering the sand beneath will suddenly break as does "rubber ice," and let you down up to your knees. Once in that far, it will be difficult for you to get out unless there is some one near at hand to throw you a rope. The trail approaches on a perfectly level mesa until it reaches the edge of the creek; then there is a steep descent of about thirty degrees for some distance. Across the creek is about one hundred feet, and then comes another steep incline on the opposite side. We saw there was going to be trouble, and so, unhitching

one of the teams, we put four horses on one wagon and started them slowly down the bank with all of the wheels chained so that they could not revolve. Even with such a powerful drag, the wagon ran on to the horses and came near being upset. When the wagon reached the quicksand we had to stop for a moment to unlock the wheels. While this was being done, the wheels settled about eight inches, and it was just all the horses could do to start the wagon and cross the trembling, shaking, treacherous level. Our four horses could not pull the wagon up on the other side, and Smith and Matthews, the guides, untied their lariats and fastened them to the wagon-tongue. Then they dismounted and gave their two splendid horses the lash; the six animals were barely able to drag the wagon on to the mesa beyond. Our second wagon, being lighter, was taken across with less difficulty.

Mr. Cowen, the surveyor, trudging through the sand, stepped into one of the ruts made by the wagon and went down to his knees. Several of us rushed back and seized him by the arms, dragging him through sand and water to the other bank. Those who had hold of him, in a spirit of fun, pretended to have continual fears for his safety, and instead of releasing him immediately upon getting him out of the rut, pulled him clear across the creek upon his knees.

We rested upon the mesa, and as we started up our burros spied several strange burros. When burro meets burro there is invariably a stampede. Despite the efforts of our horsemen, our nine burros pursued the three strangers, scattering pots, pans, canned beef, and other articles all along the road. They ran for two miles before they could be held in check. This second trouble caused a delay of an hour. When the burros were at last brought into the trail, the teamsters stopped and the boys who had been riding dismounted. The sand was about ankle deep, and as far as the eye could discern it was covered with sage-brush. Along the San Juan River was a fringe of trees, small, stunted, and hardly worthy of the noble name. For ten miles we trudged through the sand. For my part, I would rather walk five miles on an Ohio pike than one mile on any of the "roads" in southern Utah or northern New Mexico. Those who have not tried it can scarcely imagine the feeling of fatigue which speedily overcomes travelers on such paths. One may be a good pedestrian, but the continual exertion of pulling the feet out of the soft, yielding sand, setting them forward to take a good stride—only to find that your step falls considerably shorter than you intended—will wear out the average walker speedily. You cast your eyes about you to see something of beauty, but you see nothing save great frowning sandstone cliffs, an oc-



Casa del Echo.

casional coyote, or a sand crane. You sigh for the green fields and shady woods of the East. You would give all the relics and cliff houses you have seen in three months for a drink of good limestone water. You must keep your eyes on the ground for rattlesnakes and tarantulas; at the same time you must watch the cliffs afar off on your right for cliff houses and towers. You think you see a dwelling, and just as you raise the glass to your eyes you hear a buzz in a bush from which, perchance, you might have familiarly plucked a twig but a moment later. You jump, draw your revolver, and as you cover the bush you see a flat-headed rattler just in the act of striking. With great pleasure you put a bullet through his head.

On this particular day of which I write, about ten miles of that sand was all we could make by one o'clock, when we halted for dinner. We beat about the sage-brush, and having scared out the reptiles broke off a sufficient quantity of twigs to make a small fire; we boiled coffee, fried some bacon, and laid ourselves down upon the hot sand to rest.

Dinner over, we set out, hoping to make ten miles by night, but we were doomed to disappointment. We came to a place where the road ascends to the second mesa. It is called Sand Hill, and it well deserves the name. I remember to have read, when a boy, of a traveler in Egypt who was unable to travel five miles in a day, on account of sand impeding his progress. If I remember rightly, he had three or four camels; that was all; I suppose he hadn't any wagons. We were all that afternoon in getting up that quarter of a mile stretch of hill. The burros went up smiling, that is, if a burro can smile. They

can go anywhere. The horses were halted and a consultation held. We decided to partially unload the wagons, and to put six horses upon each wagon. How the poor creatures strained and tugged! They understood their business well. They would stretch themselves out, and settle down into a steady pull, so long and hard that it seemed as if you could almost hear their hearts beat. The two "cow" horses, with long lariats connecting the pommel of the saddles and the tongue of the wagon, were used as anchors; that is, when a very steep part of the hill was reached where there was a little sand, these horses at a word from the guide would bunch their feet together and lean away from the wagon just as they lean when the lasso has fallen over the horns of a steer. They were not so strong as the team horses, but more wiry, and had greater powers of endurance, so that when the team horses were resting they would hold the wagon from sliding down the hill. There was not a stone within a mile with which the wheels could be blocked; to chain them was not of much use, and this was our novel method of holding our wagons stationary.

We had nearly reached the top with the first load when one of the team horses gave a jump, swerved to one side, and then fell in the harness. He had dislocated his shoulder. We got him out as best we could, and taking two of the more steady burros, rigged up rough breast straps for them out of some old leather bands, and put them ahead of the tongue with the "cow" horses; thus we reached the top of the hill. The other wagon was entirely unloaded and taken up empty. The horses were turned loose to "graze." The delicate sarcasm in that word "graze" can be appreciated only by a man who has been through the San Juan country.

An old-timer of the region turns his horse out to graze after a hard day's work, on the territory where there is about as much grazing as there is in the middle of Broadway, New York. The horse is lucky if he can find any sage-brush tops green enough for him to eat. At first glance you would not think that he could find anything at all; it is only by going along the edge of the river that he does get any grass. The load of the second wagon was carried up the hill by the burros, and then we started to set up our camp.

A reader who has never made a "dry camp" can not appreciate the inconvenience and hardship which it entails. An old-timer would rather encounter the Indians, poisonous reptiles, and other things which the average Easterner regards as terrible, than a "dry camp." Our experience has been that the lack of three necessities—wood, water and grass—is far more dangerous to an expedition's health than any band of Indians that ever roamed the plains. You can keep out

of the way of Indians, but you can not get water where there is none; you can kill a rattlesnake, but you can not get wood where none grows. You can avoid a tarantula, but you can't find grass in a rainless region.

Some one may ask why we did not carry grain, wood, and water, with us. Any old packer would reply that horses eat so much when they depend entirely upon the feed from the wagon, that it is impossible to carry supplies for more than two weeks. There are so many things to be carried on an expedition that one must make a supply depot while he is in a country where roads are fair, and turn to it when in need of provisions. We carried usually seven hundred pounds of oats—enough for our stock six days. If we had attempted to carry wood and water in addition, we should not have been able to get horses enough to pull the wagons, and each horse added to the outfit would have necessitated more water and more grain.

There is but one way to get through the Great American Desert, to go with pack horses and as little baggage as possible, and to keep near enough to Bluff City to get supplies. Men have tried to cross above Bluff City, where there are no settlements or ranches, and in some instances they have left their bones bleaching upon the white alkali sands. It is hard enough to get from Olio to Bluff. Just consider for a moment! Olio is thirty-five miles from the mouth of the Mancos. Not a white man, not a ranch, and no water in the entire distance! Mancos Creek is thirty miles from Nolan's trading store. Not a white man nor a ranch can you see until you get to Nolan's! The force at that store consists of three white men, two women, and two children. Forty miles from Nolan's to Gillett's and not a white man or a house. Twenty-five miles from Gillett's to Bluff, over the most forlorn looking desert that the sun ever shone upon. Or, a total of one hundred and thirty miles of desert, traversed by the San Juan River, and but five creeks, all of which contain water largely impregnated with alkali. A hundred and thirty miles (which is not Indian reservation), existing in this fair United States, in which the traveler sees but two stores, containing a total population of nine white people!

We camped on that sand ridge, opened cans of peaches for supper, and drank the juice in order to quench our thirst. Some of the boys walked to the river two miles away, and brought back a precious bucket full of muddy water. We each took a tin full of this, and sighed for more, but we were too tired to go back to the river. The stock was turned loose, and allowed to wander in search of water. Nearly everyone that night slept on wet blankets as the result of the flood the night before. We did

not rest at all well, and woke up in the morning thirsty, cross, tired, and half sick. The guide informed us that water could be had four miles ahead, so we decided to get breakfast there, and trudged along through the sands as best we could.

We had to abandon one wagon on the mesa for lack of horses to pull it. We left one of the teamsters in charge of it, and put our three good horses on the lighter wagon. On the way to Bluff, we came to a place where there was a sheer wall of rock on one side, three hundred feet high, and a deep precipice on the left, at the base of which roared the San Juan River. A rock had slipped out of its bed and fallen over the edge of the road on the river side. It left barely room for the teamster to get past. As he drove over, the wheels on the lower side slid down a little, the wheels on the upper side tilted a moment and then righted themselves. The wagon passed safely, but it was a ticklish moment.

For three weeks we had been passing through a region which afforded no water which Mr. Lane, our photographer, could use in developing negatives. The surveyor had used the end gate of the wagon on which to make his maps. The artist had a small board, about two by three feet, as his easel.

The roads had been so terribly rough that the surveyor's level and transit and the larger camera were severely injured by the rough jolting of the wagons over rocks and ruts, so it was with feelings of relief that we entered Bluff and established a permanent camp. From thence the wagons were not to be taken further west, but instead the pack train and the horses would be sent out into the neighboring canyons, which were supposed to be filled with interesting ruins.

Our experience in crossing the desert, as narrated, will give the reader an idea of the inconveniences to be expected during a trip to the Southwest. One of the great causes of suffering was the lack of water. Frequently, upon reaching a stream about sundown, the members of the expedition would be so tired and thirsty that they would throw themselves on the ground, in the mud or quicksand, and, without waiting to dip up water in a bucket and let it settle, would drink out of a shallow, dirty stream scarce two inches in depth, counting themselves lucky that they could obtain even this.

CHAPTER XXI.

CASA DEL ECHO AND RUINS ON THE SAN JUAN.

As stated before we experienced no little difficulty in reaching this place. Our last camping place was at the mouth of McElmo Creek. Upon the completion of the work in Ruin Canyon, the burros and wagons were started for Bluff City, where they ar-

rived after the adventures described. Several of the members of the expedition followed the banks of the San Juan on foot to Bluff, a distance of forty miles. While traveling along the shores of the strange river, cliff houses were observed at various points. The most remarkable of these consisted of a series of ten rooms, all of which were connected. They occupied a ledge of rock fifteen feet in width and about one hundred and fifty in length.

Hanging directly over the raging river, they constituted a stronghold well-nigh inaccessible. The only way to reach them is by following a narrow shelf for a considerable distance. Great boulders project over the ledge, and one is compelled to imitate the progress of the snake to get around them. Moreover, a timid person, looking down one hundred feet to the river swiftly running below, is apt to become dizzy. There are no footpaths at the bottom of the cliffs, and no boat near. Hence it was impossible to cross the river and photograph the cliff houses. Several persons had been there before us, and all things within the buildings had been carried off. The ruins are about half-way between Montezuma and Recapture creeks. Small ruins were occasionally observed between Montezuma Creek and Bluff City.

The roads leading into Bluff City are composed almost entirely of sand. One of the horses was disabled and the others more or less worn out by the heavy hauling. For this reason we made permanent camp a mile below Bluff City, and decided not to send the wagons further, but instead, to use the burros and horses in transporting ourselves through the canyons of Hallett's and Epsom creeks. It may be noted here that the people about Bluff City call Hallett's Creek the Cottonwood; so either the map-makers or the inhabitants of Utah are in error. The large valley known as Cone Wash, lying thirty miles west of here, is not down upon the maps at all.

While preparing for the next important step in the survey, the members of the expedition enjoyed the comforts of a permanent camp. Camp life in these regions is a very different thing from the camp life known to fishermen and sportsmen in the woods. It is at its worst during halts in a journey, and its discomforts are only slightly mitigated when a permanent abiding station is chosen.

The cook is astir at six o'clock in the morning, and frequently at five. The teamsters arise at the same hour, to gather in the stock and see that it is fed. Breakfast generally consists of bacon, coffee, and hot bread. For dinner the cook serves dried fruit, canned beef, potatoes, corn, coffee, and bread. Occasionally he replaces the beef with mutton, which we buy of the Navajos, or fresh beef purchased at the ranches along our route. This last is indeed a luxury.



Eagle's Nest.

For supper we have soup, flap-jacks, bacon, fruit, and coffee. In this article is given a picture of our traveling cupboard and table, or "grub box," as it is called, at the end of the cook's wagon. The back of the cupboard is let down and supported by chains when in camp, and is closed up when on the road. The interior is divided into compartments and shelves in which are kept the cooking utensils, pepper, salt, sugar, lard, coffee, etc. The more bulky provisions, such as flour, canned goods, potatoes, etc., are carried in the wagons. The hams, canned beef, etc., are placed in the storage tent, or packed on the burros when on the move,

After things are well under way for breakfast the cook loudly calls, "Come, boys!" Up we jump, bathe in the muddy San Juan, and sit down on the ground with our tin plates, iron knives and forks, and pewter spoons to eat our breakfast. Breakfast over, orders are issued for the day, and we proceed to our work. Every man has more or less to perform, and he performs it accurately and well.

There is no interest whatever connected with camp life here, excepting archaeological matters. The country is wild, the scenery full of grand, strange beauty, which interests the traveler for a few days, but he soon tires of the same canyons, with their sandstone cliffs, and the sandy plains, which stretch day after day along his route. The few trees that shade our camp ground are covered with cater-

pillars. We have read of the locust plague which was brought upon Pharaoh when he refused to permit the children of Israel to depart. We can sympathize with the Egyptians, for all our effects are covered with the nasty, crawling creatures. As for hunting, the region is nearly worthless. Even when one does find a camping place, the water is sure to be muddy or to contain alkali. Then wood is very scarce, and on the mesa there is nothing to burn but sage-bush. Without wood and water, there is about as much fun in camping as in duck hunting where there are no ducks.

At night the members of the survey retire early. There is not as much story-telling as there was during the first month. Everyone comes in tired and hungry.

To return to archaeology. A high cliff runs parallel to the San Juan River one mile above Bluff City. In this cliff are the remains of two cliff houses, built upon the same ledge but separated by a great fissure. They are seventy-five feet from the top of the cliff, and one hundred and thirty-five from the base. Five of the men were sent up on the mesa with three hundred feet of rope. This rope was lowered and securely held by the five men on the top of the cliff. The artist climbed up about seventy-five feet without the aid of the rope, then stepped upon a great table-rock; tied the rope about his waist, and climbed upward twenty feet, where he secured another footing. The writer remained one hundred feet from the base of the cliff, so that the foremost man above could see him, and signaled to haul in or let out the rope as might be necessary. There were a great many crags jutting out from the face of the cliff, and a man could not be raised or lowered, but must climb himself. The rope was kept taut and presently the artist reached a point ten feet below the dwelling. Then the camera was snapped. The surveyor reached a point nearly as high as the artist, but was unable to cross the chasm. Mr. Lane did not get dizzy, fortunately, although he was aware of the perilous nature of his undertaking. He reached the cliff house in safety and made a drawing of a blood-red hand which is stamped on the wall at the rear of the building. Many fragments of pottery and two stone axes were found in the building. We had hoped to find a mummy, or some whole pottery, but were disappointed. The stenographer climbed into the upper cliff house. He was able to ascend without the use of a rope. One stone axe and numerous pottery fragments were all he found. These houses were similar in character, and it is our opinion that they were emptied by the occupants.

Saturday, May 7, five of the party crossed the San Juan River to examine the famous Casa del Echo. Messrs. Holmes and Jackson and several

other persons have described this cavern, so we will speak of it only briefly.

We experienced no little difficulty in getting across the river. An Indian agreed to take us over and back for the sum of one dollar. Entering the boat, the Indian seized the rope, laid his blanket upon the shore, and, stripping almost naked, plunged into the river and waded across. It was all he could do to hold the boat against the current. We landed on an island, crossed it, and waded a small branch of the river to a second island, where we entered another boat. The river here was narrow but very swift and deep. Despite the efforts of the Indian to row the boat across, we were carried down the stream more than one hundred yards. The Indian's dog tried to swim it, and was carried nearly three hundred yards below before he could make a landing.

Upon our return from the great cavern, the Indian was nowhere to be found. In short, we were defrauded. In vain did we plead with the Indians who gathered about us, but they would not take us over the river. They compelled us to give one dollar in money and some cartridges before any of those present would transfer us to the other side.

Casa del Echo is two hundred and fifty feet across at the opening, and the arch is about two hundred feet in height. The distance around the inside is three hundred and sixty-five and six-tenths feet. Of this half circle, two hundred and six and six-tenths feet are occupied by fifteen rooms. The formation of Casa del Echo is sandstone. The stone had gradually weathered out until the present form has been attained. The roof above constitutes an arch of great strength. A broad shelf or ledge, ranging from four to twelve feet in width, runs around six to eight feet above the base. Upon this ledge the cliff houses were built. On either side they do not approach the ends by forty-nine and one hundred and ten feet respectively. The smallest rooms are at the west end—the largest toward the east. The rooms vary in size from nine and a half by five and a fifth feet, with a six-foot wall on the outside, to fifteen and two-fifths by eight and four-fifths feet. At the extreme ends are two long narrow rooms, the one, thirty and three-fifths; the other, eleven and three-fifths feet in length. The three rooms next to the long one on the east were two stories in height—the others but one story.

The Casa del Echo was well fitted by nature for occupancy. There was not room enough in it to sustain more than twelve or fifteen families. There were but three doorways, and as numerous loopholes, pointing downward in every direction, guard the only approach; we class it among the small fortified cliff pueblos. In the eastern end, between the last two rooms, is an open space. In this open space are two round holes drilled in the ledge, four and



Doorway at Eagle's Nest.

one-fifth feet apart, in which are evidences of rubbing, grinding or pulling. The holes are six inches in depth and three in diameter. Messrs. Jackson and Holmes suggest that they were used for setting up a loom and they may have so served.

While the Casa del Echo is interesting and, certainly, quite picturesque, it has not the importance that some would attach to it. It is only one of those compartment houses or pueblos which have been built in the cliffs instead of on the plain. The same conclusions at which we arrived on the dwellings of Ruin Canyon will apply in this case.

CHAPTER XXII.

CAVE DWELLINGS IN BUTLER'S WASH.

Here, in the triangle formed by the Colorado River, the San Juan River, and the Colorado State line, is a country of labyrinthine canyons and gorges comparatively unknown. One has only to glance at a map to see how little of this region is mapped at all, and very little of that has been done correctly. Like all new localities, it is of especial interest to the scientist and the student, and it seems strange that no expedition visited it before ours. It is a region celebrated for its precipitous cliffs and its desolate scenery, and there is hardly a square mile of it which does not show some evidence of its ancient inhabitants.

The region is of sandstone formation, cut and washed by erosion into deep and winding canyons and gorges, under whose cliffs large caves and caverns have been weathered out, forming excellent shelters in time of storm and safe retreats in time of war.

The cave and cavern ruins predominate, showing that the first inhabitants took advantage of natural shelters under the cliffs in preference to erecting complete buildings. There is no difference between the ruins in the cliffs and those in the canyons, or between the relics found in them; yet it is highly probable that the caves were inhabited by tribes anterior to the coming of the cliff-dwellers, and that the latter, at a later date, erected their buildings directly over the ruins of the cave dwellings proper. Caves have been found clearly showing this fact of two distinct ages. They are in the deep canyons bordering on the Colorado River, and are not easily accessible.

It is not improbable, therefore, that the caves bordering on the Colorado River extend through two distinct periods. Mr. W. H. Holmes speaks of cave-shelters in Colorado which he thinks so ancient that the rock which formed their openings has worn entirely away, leaving them now as mere shelters or nooks in the cliffs. We noticed this fact in the ruins in Utah along the San Juan. Again we noticed in many of the ruins that the overhanging ledge which in early days formed their shelter, had fallen, sometimes leaving only a few feet of wall in sight, the rest being buried under the debris. In estimating the age of these dwellings from their present stage of dilapidation, we must take into consideration the softness of the sandstone in which the ruins were found.

The survey of this region was undertaken by seven members of the expedition, who left the permanent camp at Bluff City with provisions for some weeks. The party first made their way to Butler's Wash, which empties into the San Juan River about four miles below Bluff City, and extends northward more than thirty miles. As we entered the valley (called by the Mormons a "wash") we were struck with its weird and desolate appearance, stretching, as it does, as far as the eye can see, naked of all vegetation except stunted sage-brush and greasewood, hemmed in on the east by high precipitous cliffs of red sandstone, with curious knobs and needles jutting upward and weathered into fantastic shapes and designs. On the west a ledge of white sandstone gradually slopes upward until it reaches a height of two or three hundred feet, when it suddenly descends in high cliffs to the next valley below. In the immense sandstone spur outcropping between Butler's Wash and Comb Wash, about ten miles north of the San Juan River, we noticed a large cave in one of the deep canyons in the ledge, and, examining it with our

field glasses, we thought we could distinguish ruins near the opening. Four of us started to investigate and found it a cavern of great dimensions, with the whole floor under the overhanging ledge studded with ruins. The canyon in which this picturesque cave town is situated is wild and beautiful, shut in on all sides by high sandstone cliffs, and having only one narrow entrance. The foliage is almost tropical in its luxuriosness. We found cactus plants of gigantic size, and grass and flowering plants over a foot in height, while the bare, rocky ledges were studded with cedars, cottonwood and pinons. This luxurious growth of cactus and of other plants which are stunted upon the mesas is probably caused by the heat being retained in the bare, rocky ledges, thus producing the forcing effect of a greenhouse. We named the place Cold Spring Cave, on account of the fine spring of cold, clear water away back in the interior of the cave. It flows out from under the heavy sandstone ledge into a round, clear pool, and, after passing through a short outlet, sinks into the ground and disappears, not half a dozen feet from where it started.

The whole series of rooms and buildings have an unfinished look. For instance, walls of many of the dwellings have been neatly built up to a height of two or three feet, when the work seems to have suddenly ceased, although piles of unhewn stone and adobe mud lie near by, as if the builders intended to complete the work but were interrupted in the midst of their employment. Again, we find a wall neatly built, with the edges perfect and well-mortared, which breaks off suddenly and continues as a rough wall of unworked sandstone blocks—unplastered and piled up hastily. Everything about the ruins tends to prove that the builders were either interrupted by the approach of an enemy, or deserted it for other quarters. The former theory seems to be the more likely to be correct, for we found across the front of the cave a rudely constructed wall, which was undoubtedly thrown up for defensive purposes, and in the walls of the rooms back of this can be seen loopholes pointing in every direction.

The mouth of the cave faces the south, so that the morning sun penetrates some distance into the interior of the cave. One does not realize at a glance how far back the cave really extends. The spring is situated one hundred and twenty-five feet from the edge of the overhanging rock at the mouth. At a distance of forty-three feet from the spring the cavern is protected by a strong wall, seventy feet long, extending from one side of the cave to the other, and thirty-three feet from this wall, toward the opening, runs the second rudely constructed wall of which mention has been made.

At the right of the entrance to the cave is an

estufa* or kiva of peculiar shape. It is seventeen feet six inches in diameter and, at the present, four feet deep. Around the outside are six openings, somewhat resembling benches, and, between these are sections of the wall extending inward and forming pillars. These sections are irregular in size and shape, but are generally about one foot deep and two feet above the bottom of the estufa.

On the south side of the estufa is an opening one foot square, descending vertically two feet, then turning at right angles and leading into the estufa. Part of the roof remains around the edges and shows how the cave-dwellers covered their kivas. In the present instance, the roof was built of small beams, covered with four or five inches of brush and small sticks, and perhaps several inches of adobe mud upon the top of the brush. Directly back of this estufa, built up against the stone ledge, is a curious little house about five feet high, six feet wide, and five feet deep, with a very small doorway. Imagine living in a house with just room enough to turn around in if one sat down, but not high enough to stand up in, or large enough for two at the same time. It was a strange little place; we could find nothing to show whether it was used for a dwelling or for a storeroom for grain.

About five hundred feet to the east of this is another kiva, greatly resembling the first, except that it is smaller, having a diameter of eleven feet six inches. The walls had been plastered four or five different times, each layer being easily distinguished in places. The last coat was painted red. Fragments of the brush-covered roof remain all around the sides, with charred ends, showing that the roof had been burned. Between these two estufas are a half a dozen small ruins, some merely cave-shelters, and all in a poor state of preservation, with most of the walls fallen down.

In a small, square room, east of the first kiva, we excavated to a depth of three feet, finding some fine jasper arrow-points, many corn-cobs and grains of corn, fragments of decorated pottery, fragments of matting, pieces of string to which feathers had been attached in the shape of a head-dress, and one arrow shaft of wood with the small jasper arrow-point still remaining in position, and even the rattan wrappings intact. Nothing of importance was found in any of the other rooms. One noticeable feature of these ruins was the great number of hollows in the sides of the boulders, where the ancient builders had sharpened their axes, and the long deep grooves where they had sharpened other stone implements.

The walls of the cavern are dotted here and there

*An estufa or kiva is a circular underground chamber, with walls of masonry, supposed to have been used as a meeting place.



Bluffs Near the San Juan.

with picture-writings and representations of the human hand. The latter are painted in white, yellow, brown, red and green. These markings may not seem of especial importance at first glance, but when one visits a great number of these ruins, and notes the frequency of the occurrence of representations of the human hand, it can not fail to impress him as being of peculiar significance. There are very few ruins of importance in which hands can not be found. This fact is true not only of the ruins in Utah, but also of those in Arizona, New Mexico, and Colorado; and in almost every case, especially in the larger ruins, they occur not singly, but often fifty or one hundred imprints or printed representations, placed together, oftentimes in rows or groups over the houses, or high up on the cliffs.

While examining the canyons near Cold Spring Cave, our attention was attracted to a cave-like recess near the top of one of the high cliffs, about a mile to the northwest. We gave it the fitting name of Eagle's Nest. As it looked difficult of access, we took a long stout rope and started up the cliff, intending, if possible, to obtain entrance to it by means of the rope from the top of the cliff. Upon reaching the top, the cliff proved very much higher than we had expected. Beneath us was full four hundred feet of sheer precipice, the cave being situated about fifty feet from the top. We fastened our rope to three sage-bushes, about fifty feet apart, and then, by clinging to the rope and swinging from one foothold to another, we were able to reach the floor of the cave, although at first it seemed a difficult feat to swing under the overhanging ledge into the cave.

It is a snug little place, situated in a cave of elliptical shape, weathered out from the perpendicular side of the cliff. The opening is toward the south, which is the case with many others in this locality. The ancient dwellers obtained access by cutting footholds in the side of the cliff, but these have weath-

ered out to such an extent that it is impossible to use them now for the same purpose unless one is supported by a rope.

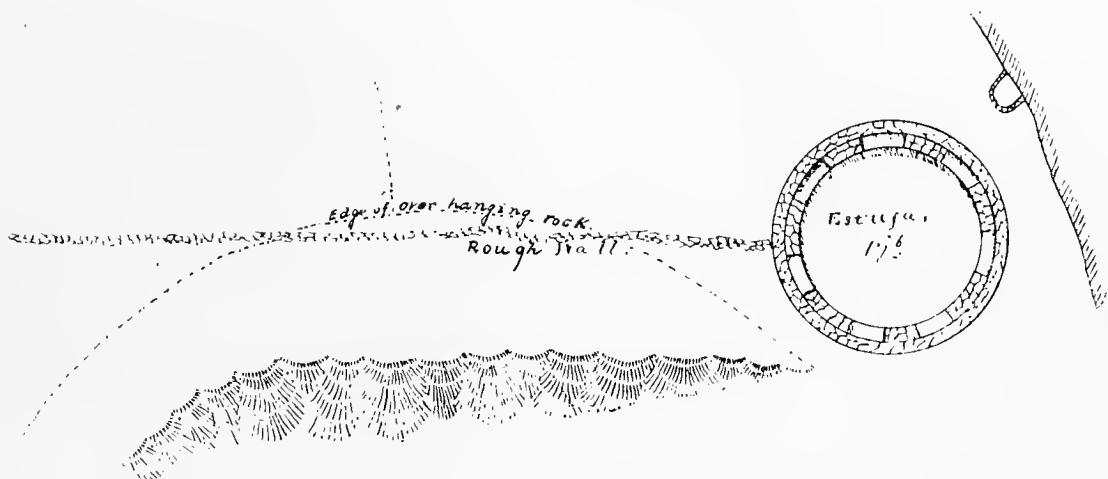
Many writers have said that the cliff-dwellers were a timid people, yet their small dwellings up in the high cliffs, their little footholds cut in the rock over the dizzy heights and many other evidences of their life among these precipitous ledges would seem to show that although they may have feared an enemy much more powerful than themselves, yet courage itself was not lacking, for it must have been essential in scaling these dangerous and dizzy heights. The entire absence of loopholes in this cave was noticeable; yet, after all, the cave is so inaccessible that there would have been but little use for them; and, so long as provisions and water held out, the inhabitants would be safe.

One can not see the bottom of the cliff from the cave, yet if a rock is hurled over the side, it can be heard crashing its way down the sides of the cliff to a surprisingly great depth.

The ruins consist of eight rooms, protected by a rough wall extending nearly across the mouth of the cave, which measures twenty-nine and a half feet in length and forty-eight feet in width. In the ground plan which accompanies this article, the reader can obtain a good general idea of the ruins. Room "A," at the left-hand side looking in, is very small—five feet wide, four and seventh-tenths feet deep, and five and six-tenths feet high. It has two small doorways, facing east and south. Room "B" is larger, being in the widest place fourteen and one-fifth feet wide, eight feet deep, and about five feet high, the floor being on three ledges of rock, each one foot higher than the other. Room "C" is seven and three-tenths feet high, eight feet wide, and averages about seven feet deep, having one window facing south. Room "D" is seven and three-tenths feet high, eight feet wide, and six feet deep, having one window facing the south. Room "E" was not complete, the outside wall being only four and three-tenths feet high, five feet deep, and four and seven-tenths feet wide. "F" was an opening which served as a hallway, perhaps, while room "G" is three-cornered, the west wall being seven feet long and three and two-fifths feet high, and the south wall twelve and two-fifths feet long, and four and three-fifths feet high. The base of the rock formed the third wall.

These rooms were all well built, and are in an excellent state of preservation. Picture-writings are conspicuous by their absence, while the floors of the three rooms are strewn with fragments of pottery. A few stone axes and mano stones were found in excavating some of the rooms.

Directly to the east of Eagle's Nest Cave, about two hundred feet distant, is a small circular room



Cold Spring Cave, Sectional View, Showing Edge of Precipice, Edge of Overhanging Cliff, and Estufa.

about eight feet in diameter and six feet in height, under an overhanging ledge. Perhaps it served as a watch-tower in times of war, and, for this purpose, it could not have been better located.

Reference has been made to the pictographs. They are a study in themselves.

The hand is, of all pictographs, the symbol of most frequent occurrence. It is cut into the rock, or painted upon it in red, yellow or black. Sometimes it stands alone over the entrance to a dwelling, and sometimes on the walls surrounded with numerous pictographs of animate and inanimate objects. In almost all cases they are located in such inaccessible places, or are so indefinite, that it is quite impossible to secure photographs.

The rear walls of each of the fifteen chambers of the Casa del Echo Cavern are stamped with several hands of ordinary size. Not one of them is cut into the rock. In every case the owner or dweller seems to have dipped his hand into red paint, and then firmly pressed his palm and fingers against a smooth portion of the wall. Since it seems incredible that so light a paint could have lasted through the thousands of years, it is probable that the color was thickened by the laying on of more paint over the lines first made. It is observable that the right hand predominates, and by actual count we found the average to be an excess of over seventy per cent.

Mr. McLloyd states that the hand along the Colorado River dwellings is most frequent above the entrance to the dwelling.

CHAPTER XXIII.

TROUBLES.

Of all symbols none is more ancient than the symbol of the hand. Its origin is lost in the mists of antiquity, but its use as a symbol can be traced to the time of the early Egyptians, Jews, Assyrians, and Greeks, when the impress of the signet or seal was left upon wax, with the force of the hand, to denote the will of the person. To-day it is preserved in our legal phraseology with precisely the same significance, and when we write "witness our hand and seal" we express a thought common to men five thousand and more years ago.

About May 15 the expedition separated and teamster Ollinger took Moorehead and Ralston to Durango. At Bluff City they halted over night. Bluff became the base of supplies of the eight men remaining and they frequently returned to it for various goods and provisions.

Bluff is quite a pretty little town. It is all fenced in and each man has an irrigating ditch running round his house and garden. The people are kind, hospitable, and industrious and raise various fruits, grains, and vegetables. The Mormons at this place are far removed from civilization and if they cared to practise polygamy, no one would be the wiser, but we saw no evidences to confirm the statement that there were plural wives. The people seemed as honest and industrious and as moral and straightforward as those of any Eastern community, and while the members of the expedition did not agree with the Mormons in their religious views, yet our sense of justice would compel us to say that there

are many who criticise them who might do well to pattern after them in the matter of thrift and morality.

At this time the expedition was short of funds and Mr. Minton, after many appeals, wired \$300 to the National Bank at Durango and the bank notified the Mormon cooperative store that that amount was placed to our credit. I did not care to leave the expedition, but the need of funds was imperative and as nothing could be accomplished by correspondence, I desired to place myself in telegraphic communication with personal interests in the East. The expedition had but fairly started and, if it failed, I would be severely censured, not only by those who did not understand the circumstances, but also by some scientists who were familiar with it and were glad of an opportunity to criticise. One of two things must be done, either raise money or end the expedition. The running expenses were sometimes under \$500 a week and all the money received up to the 12th had been used in the expense account and no salaries had been paid, and the westerners were particularly anxious to have their money. I mention these details because two or three gentlemen have criticised me quite severely for ending the expedition the first of June, instead of continuing it until October as was originally planned.

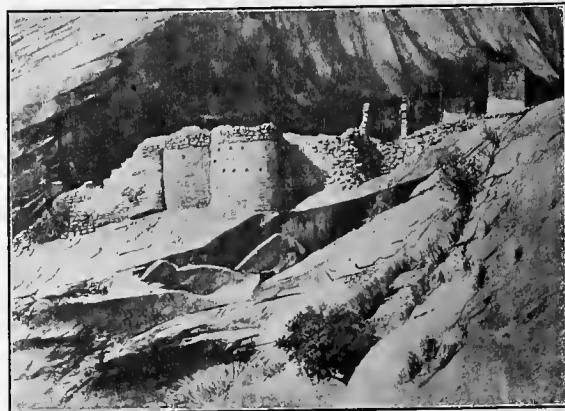
Gunckel was placed in charge of the eight men left and given orders to explore for a month in the country lying between Bluff and the Colorado River. I assured him that the first money received by telegraph at Durango would be sent to Bluff City by the bank to the cooperative store, that he could depend on the funds. A meeting was held, the situation explained to the men and they all agreed to continue with us till my return. I have always felt under great obligations to Gunckel, Cowen, Ralston, Lane and the rest. They certainly did their part and continued to survey, photograph, and take notes notwithstanding difficulties, a dearth of provisions, etc.

Ollinger drove as hard as he could and we reached Durango in three days. The distance from below Bluff to where we started is estimated from 100 to 110 miles.

I sent telegrams to various personal interests and succeeded in raising \$2,000. Part of this money was at once sent to Gunckel by Ralston and Ollinger, who returned as soon as my first telegram had been answered.

Business detained me several days in Durango and I made a study of the McLloyd collections. Our article on these called attention to the region west of Bluff as a new field. Ultimately, McLloyd's exhibits were purchased by the American Museum of Natural History and the University of Pennsylvania Museum.

As there is a better road down the valley from Mancos to Bluff, and as one can see various ruins



A View of Monarch's Cave, Utah

in the Mancos region, I decided to go there. Leaving word for telegrams to be brought by messenger I set out.

About Mancos is a broad and fertile valley resembling the La Plata in character. Numerous boulder and other smaller ruins are scattered throughout its extent and I spent a day in examining them. That evening a messenger arrived at Mancos. He brought a message from Minton. It was insulting in tone and peremptorily ordered me to return to New York. After the personal sacrifices I had made for the survey, this message was uncalled for to say the least.

I hired a man to ride down to Bluff and carry money and orders to Gunckel. I left the remainder of the money with the proprietor of the hotel at Mancos. Gunckel was to bring the party to Mancos and proceed from there to Durango or disband at Mancos according to his best judgment. I told him to continue work as long as he could for the amount of money he had on hand.

CHAPTER XXIV.

M'LLYD'S COLLECTION.

Returning to Durango I spent a day in interviewing Mr. Charles McLloyd. This gentleman is deserving of credit for his work in the side canyons of the Colorado. He gave me notes and a local photographer took views of some score of his more important objects. Perhaps, in some quarters, credit for the pioneer work has not been accorded to the proper persons. Therefore, I give Mr. McLloyd's interview (with some abridgments) herewith:

"Four winters ago, I examined the Mancos Canyon and its ruins in company with several gentlemen. Making a report upon my discoveries, I was assisted in my work by the Colorado State Historical Society.



Mummy of a Woman. The Limbs are Enveloped in Finely-woven Cloth; Feathers. This Mummy Weighs 16 Pounds.

The members of this institution took great interest in the cliff-dweller problem, and were prevented only by their lack of funds from sending me through the Colorado River Canyon and its tributaries. In speaking of the Colorado Canyon, I should say that the inaccessible parts of the main canyon contain no houses. I have not been all the way down the canyon, and can only speak for the upper part. Where many side canyons enter, one can approach the Colorado River, and actually descend to it in places. The river occasionally becomes quite wide, and where rocks have fallen from the cliffs on either side, foundations have been formed for small patches of ground. A few trees, bushes, and grass grow at the base of the walls in each spot. The canyon changes in appearance every few miles. You may approach it through a side canyon, and find a small fertile meadow at the mouth of the gorge. Again, you may approach it from a high mesa, and look down over the brink of a precipice, at a dizzy height of fifteen hundred or two thousand feet. The wall just opposite you may be no more than three hundred yards away, and the water will cover every foot

of the bottom between the walls. So you see, the prevailing idea that the canyon is one long, deep flume, filled with raging, roaring waters, inaccessible except at its extreme head, is all nonsense.

"After exploring the Mancos Canyon I took with me Mr. Graham and a number of pack horses. Using Bluff City as headquarters, we located camp some distance below the mouth of the Grand River, upon the Colorado. We found many side canyons, some of which could be easily entered, while others having perpendicular walls were inaccessible, except in one or two places. Frequently we would travel for miles along the edge of a precipice before we could descend into the narrow valley beneath. When we did get down where we could look beyond the underhanging cliffs, we invariably found one or two classes of dwellings, and sometimes both of them together. I would divide the dwellings of the Colorado River aborigines into cliff houses and cave dwellings. The cliff houses need no explanation. The cave dwellings are very unique, and so far as I am aware, bear a resemblance to caves discovered in South America. In nearly all the canyon sides there are great caves formed by the combined action of sun, wind, and water. Many of these have stone floors. There are also caves which have formed at the base of the cliff, and have not stone floors as a base, but instead only the clay or loam covering the bottom of the canyon. In such shelters I find that primitive man dug out a number of underground chambers, most of which he did not wall up or divide into rooms by partitions. If the cave was very large he frequently connected one room with another, but it was not his custom to subdivide his underground residence. In this he did not follow the example set him by the pueblo, or cliff-dweller. The clay forming the bottom of the caves is very hard and sticky. One can undermine it for some distance without danger. The people were aware of this, and so they made their homes bell-shaped, large at the bottom and small at the top. The depth of the average dwelling is from six to eight feet, and its diameter at the base varies from six to seven feet. The entrance is at the top. Some of the openings are no more than eighteen or twenty inches across. Pole-ladders were used in egress and ingress. Long continued fires in the most primitive abodes have blackened and hardened the clay sides of the structure until they are as hard as adobe brick. In several of these rooms we found sandals, arrowheads, and knives, mounted in their original handles, baskets, skeletons, and a host of other things.

"It is very singular to note that no pottery is found in the underground caves. In the making of textile fabrics the inhabitants seem to have been equal in skill to the cliff-dwellers. The two peoples were



Mummy of Woman and Child.

strangely alike in many respects; indeed, in my collection there is a striking resemblance between the objects from both classes of ruins."

The illustrations of mummies and crania contained in this article were taken from Mr. McLloyd's collection while it was stored in Durango. The attention of the reader is called to the illustration which presents a flattened skull and the head of a mummy. It will be seen that the head to the right is very well shaped. The lips stand out strongly, and the nose, ears, and eyes are all well preserved. At the base of the skull considerable hair is left upon the scalp. One or two skeletons of adults buried with children have been discovered. A picture of one is presented herewith. The child and mother are both in a good state of preservation. Many of the mummies have feather cloth wrapped about the limbs and waist. All the mummies were found in the Colorado River canyons. We can thank the dry climate of the Southwest for their preservation. Mr. McLloyd informs me that he usually found the mummies in piles of dry dust. This dust is the accumulation of ages, and includes refuse from cooking, together with numerous broken implements.

It is singular that the burial should have been

made in piles of refuse of such nature. In this respect, the Colorado River people were strangely like the Ohio mound building tribes, who buried their dead directly under the most thickly populated portions of their towns.

The discoveries and observations made by Mr. McLloyd can not be described at this time. They have a direct bearing upon the solution of the question which has arisen during the last few years concerning the tribes occupying the San Juan country. His finds indicate the existence of one tribe which is peculiar to that section of the country alone. His finds in the cliff houses can be classed with those of Mancos, McElmo, Recapture, Chaco, Chelly, and other valleys. He found both cliff and cave dwellers living upon the turkey, goat, deer and game. The discovery of numerous pumpkins, squashes, beans, gourds and like substances, in the dry dust of the caverns gives him ground for the assertion that the people were largely agriculturists. He further claims that ideas of self-preservation prompted primitive man to construct his home in inaccessible places. He holds, as do the members of our expedition, that the aborigines did not seek out such retreats from choice, but from necessity. He found no evidence in the cliffs and caves of contact with the Spaniards, Aztecs, Pacific Coast tribes, or mound builders. He found no metal in any of the ruins. He places the inhabitants of the San Juan Valley as distinct and living apart from all other tribes surrounding them. He grants them skill in their basket work, gives them credit for the raising of cotton and weaving of cotton cloth; he admires their feather work, and thinks some of their stone work to be quite creditable. But while he admits so much, he would not say that the man who made the dwellings was civilized in any sense of the word. In all of these observations, we entirely agree with Mr. McLloyd.

CHAPTER XXV.

DISCOVERIES IN SIDE CANYONS.

After Mr. Moorehead left us, in one of the deep canyons, about two miles south of Eagle Nest Cave, we discovered one of the most picturesque series of ruins that we had yet seen. It is situated in a beautiful box canyon in the rocky divide between Butler's Wash and Comb Wash, about nine miles south of the Rio San Juan. The canyon is but half a mile in length, but what a contrast it affords to the monotonous and bare mesa and valleys outside! Here instead of stunted sage-brush, we find a luxurious growth of large, wide-spreading cottonwood trees, giving delightful shade from the hot sun; and beautiful shrubbery and flowering plants, and cool running water. One can appreciate the great difference

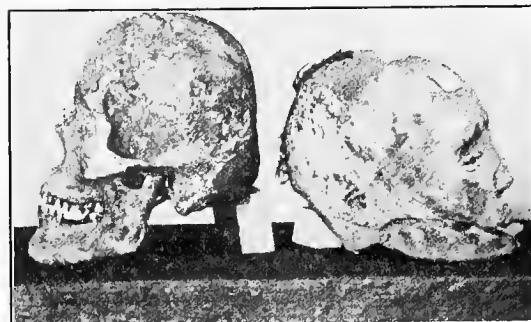
only after traveling all day on the dry and sandy mesa, where not a drop of water is to be found, and then entering one of these little canyons, which seem like paradise on earth. One of the large cottonwood trees measured fifteen feet around the base—a wonderful growth for this locality.

Directly at the west end of the canyon, the high sandstone cliffs, with a graceful and undulating curve on their weathered surfaces, close together abruptly, forming a large cavern about one hundred feet from the bottom of the canyon. In this cave are the ruins we are about to describe. From their prominent position they command the valley; and their curved fronts, cut with dozens of loopholes, give the effect of a modern fortress. We named it Monarch's Cave, for it must have been monarch of all it surveyed.

The cavern was thirty-five feet in height at the front, and fifty-seven and three-fifths feet deep, forming an excellent stronghold and a perfect shelter. It is only accessible on the north, and then only by using the ancient footholds which have been cut in the slanting sandstone ledge. As many of these have been worn away, it is with no little difficulty that one gains entrance into the cave. Directly under the mouth, at the bottom of the canyon, and almost hidden by the shrubbery, is a large excellent spring of clear, cold water, measuring thirty feet across and having a depth at the center of four feet. Such a source of water was of extraordinary importance to the ancient dwellers in the cavern. It not only supplied them with water, but also irrigated the canyon for the cultivation of their crops. At the back of the cave water also trickles down the ledge of rock, causing a thick growth of hanging ferns and creeping vines, adding much to the beauty of the place.

Judging from the large number of loopholes in these ruins, the structure was evidently intended as a fortification. In one room alone we counted twenty-five loopholes. From these the defenders could send their deadly arrows in every direction, up or down the canyon. The front walls of the most prominent rooms are all rounded, so that by means of the loopholes the whole canyon below could be commanded. The entire aspect of the cave is of defense and protection rather than comfort.

The buildings in the north end of the cave give perfect illustrations as to the methods of roofing, when the building did not extend up to the roof of the cave. Two heavy beams or rafters were laid across the top of the building, parallel with each other, as the foundation for the roof. Then over these, brush and small sticks were laid crosswise to a thickness of three inches, and upon this was set a layer of adobe mud about three or four inches thick, neatly plastered down. The roofs in Monarch's Cave



Skulls of Cliff-dwellers.

still show the finger marks of the ancient builders. Some of these buildings are two stories in height, the upper story being in a good state of preservation, although the floors have fallen through. In one case, the entrance to the upper room is by a small door in the wall, which is reached by means of a cedar log laid across to the next dwelling. The log is a little lower than the sill of the door, and, for convenience in entering, a stone protrudes from the building, serving as a step from the log to the door above. It is, truly, a unique way of entering one's residence, and it is the only case which we have noticed. In this building and the one next to it were originally small square doors neatly built, but subsequently filled up with roughly-hewn rocks, tightly plastered as if for extra protection. At the other end of the series of ruins, many of the walls have been made out of a conglomeration of adobe mud and small stones. These have the appearance of being somewhat older than the stone walls, and, in some instances, the latter have been placed directly over others. At this end there is an estufa in a poor state of preservation, being nearly filled with debris. Its diameter is fourteen and three-fifths feet.

Imprints and representations of the human hand were found in great numbers upon the walls of the cave, in red, white, and green paint, some so high up on the walls that it would have taken a long ladder to reach them. Rude picture-writings were also found at intervals in the cave and along the side of the cliff. As a rule, they had the same general characteristics as those we have described in other localities. One, directly over the south end of the ruins, high up on the roof of the cave, was of extraordinary dimensions, being eighteen feet long and six feet wide, and painted in red; but so roughly executed and weathered that it was impossible to make out what it represented.

By digging in some of the rooms a few neatly worked stone axes and arrow-heads, pieces of matting, short sticks with balls of pitch on the end for

torches, pieces of string, and many corn-cobs and husks were found.

The exact dimensions and general plan of the ruins and cave will be seen in the ground plan which accompanies this article.

Another interesting series of ruins was found on the west side of Cottonwood Gulch (so named on account of its immense cottonwood trees), about twelve miles north of the San Juan, on the west side of Butler's Wash. They were situated on the north side of the canyon, on a large ledge of sandstone fifty feet above the surface. At first we were much puzzled how to reach them. After several unsuccessful attempts, we cut a sapling and used it as a ladder. Upon reaching the ledge we soon discovered how the ancient inhabitants performed the feat. In several places along the edge the rock is worn away as if ropes had been lowered.

The main ruin consists of five rooms, all one story in height, and all built along the edge of the ledge. Nothing of importance was found in excavating the rooms. On the face of the cliff, at a distance of about fifty feet, is a striking set of picture-writings. There are two target-shaped figures; one is a foot and a half in diameter, and consists of seven rings, one inside the other, with alternating colors of white, green, and red; the other much resembles the first, and has a diameter of fourteen inches, and five rings of white, green and yellow. Between these two target-shaped figures is a large semicircle painted in green, having a diameter of eighteen inches. Suspended from each end of the semicircle is a small circle in green, with a red dot in the center. These can be seen some distance down the canyon, and their bright colors immediately attract the eye.

Directly under the ledge is a cave extending back for a considerable distance, and fortified at the entrance by a rough stone wall containing many loopholes. Along the base of the cliff, to the west of the cave, is a series of a dozen rooms and two estufas, all in a poor state of preservation, and much broken down. The first kiva has a diameter of fifteen and seven-tenths feet, and is about four feet in depth; the second one is a little smaller, having a diameter of fourteen and a half feet. The other rooms near the estufas are not worth special mention, being in a poor state of preservation. A few picture-writings are to be seen upon the walls of the cliff near the houses; and, also, imprints of the hand in red and white paint. We dug into many of these rooms, but found nothing of importance.

On the morning of May 14, while working our way up the valley in Butler's Wash, about fifteen miles from the San Juan River, we noticed an immense cave up in the rocky ledge, fully two miles distant. As we approached it seemed to grow to enormous

dimensions. Upon reaching and measuring it, we found it to be three hundred feet wide, fifty feet high, and one hundred and twenty-five feet deep. Its mouth was two hundred feet above the bottom of the gulch. All around in the entrance the early inhabitants had built a strong stone wall four feet in height, and running in a semicircle to a distance of four hundred feet. From its enormous dimensions we called it Giant's Cave, and it is, undoubtedly, the largest one in this part of the country. No other traces of ancient occupation were found than a few pictre-writings, and a few rock shelters, so we presumed that it was used only in time of danger, as a safe retreat. A quarter of a mile to the east of this cave, down the canyon, is a series of ruins which, at one time, were of fine workmanship; but the ledge of rock has fallen and destroyed the greater part of the buildings. One of the rooms has a very interesting painted decoration on the walls much resembling Greek workmanship. Directly above this, on the east wall, is a representation of the full moon painted in red, and opposite it, on the west wall, a painting of the new moon.

Some of these buildings were originally two stories in height. Many of the walls contained loopholes. The walls were in such a ruined condition that it was impossible to obtain correct measurements.

On the morning of May 16 we arrived at Allen Canyon, a tributary to the Cottonwood Creek. The latter flows in a southeasterly direction until it empties into the San Juan River near Bluff City, a distance of thirty-five miles. It is a wild and desolate valley, bordered by weathered cliffs whose tops are sparsely covered with stunted pinons and cedars.

Near our camp, on the west side of the canyon, we found a two-story house, eight feet deep, ten feet wide, and four feet high. It is interesting, as it shows the construction of the floors and roof—made of beams, brush, and adobe mud.

A short distance from this house, in the end of the box canyon tributary to the Allen Canyon, is an interesting series of ruins which we have called Double Cave. They are placed upon two ledges, one above the other. The cliff extends one hundred feet or more above it, while from below there is no means of access. Evidently, part of the ledge has fallen at the point where the ancient dwellers were originally able to climb to it. The caves both face the south, so that the noonday sun shines some distance into them. The lower cave is fifty feet from the bottom of the canyon, but it can be entered without difficulty. Several of the buildings are two stories in height, and protected by a high wall which runs along the edge of the cave. This wall was strengthened by plastering in poles which touched the roof of the cave, and were mani-

festly intended to prevent it from toppling over. The majority of the walls in the lower series were about twelve feet in height, and the rooms eight feet square, with the floors covered with several feet of debris and dust.

Many of the beams and rafters remain intact and are well preserved. The same method of making the floors and roofs, which we have described already, were used here. On the wall of the cave is a painting in red of a snake, measuring five feet in length, and there are also many imprints of the human hand in red.

The ruins on the upper ledge we were unable to get into, even by means of a long rope. Viewing them from the opposite side of the canyon, we saw that they consist of half a dozen small rooms, in a fair state of preservation.

In one of the small tributary canyons to Allen Canyon, about thirty-five miles northwest of Bluff City, are two small but characteristic cliff houses. In cliff house "A," the dwelling is protected by a peculiar wall, consisting of wicker work and adobe mud, supported by stout cedar posts, set in round holes in the solid rock. The wall is neatly made, and is the only example of this kind of work which we found. It is about six feet high and eight inches thick. This dwelling is situated in a hollow cavity in the cliff, about thirty-five feet from the ground, and we were only able to enter it by cutting down a sapling and climbing up by means of it. The dwelling is complete, with roof of adobe mud and an extraordinarily small doorway.

About a quarter of a mile to the west of this is another small cliff house much resembling it. It consists of two very small rooms, with the doorways facing each other. Several miles to the west of this, in one of the southwest tributaries of the Cottonwood Canyon, is an interesting ruin, in a small circular cave, which is accessible only by climbing up the ledge, using the little steps and footholds which were cut in by the ancient dwellers of the cave. It is one hundred and fifty feet from the bottom of the canyon, and fifty feet from the top of the cliff. There are five rooms and a sort of hallway; the rooms in the middle being two stories in height. Nothing of importance was found in the cave.

A few log-book entries are as follows:

MAY 19.

After dinner moved camp a couple of miles distant. Cox and Smith shot three mallard ducks, so we had a game supper; a welcome thing, for our provisions were fast giving out.

Hawk's Nest Cave is in one of the southeast forks of Cottonwood Canyon. The cave faces northwest. It is 50 feet from the top of the cliff and 150 from the bottom of the canyon.

MAY 20.

Sent out four parties in different directions to hunt for ruins and covered a radius of twenty square miles, but could find none of importance. When they returned we decided to start the next day down the canyon back to Bluff, for ruins were scarce and our provisions nearly gone. In the afternoon Lane and Gunckel went over the cliffs for miles, but could find no dwellers.

From this point we proceeded down the Cottonwood Creek for a distance of thirty-five miles, until we reached our permanent camp near Bluff City. Along this creek there are very few ruins, and we only saw a few unimportant shelters and cliff houses, and several ruined pueblos.

As our conclusion, we would say that there is no richer locality in this country for the ruins of cliff dwellings than Butler's Wash, Comb Wash, and the unexplored regions to the south and west. A rich reward awaits the archaeologist who thoroughly explores the more remote canyons and gorges in this desolate and unknown region.

CHAPTER XXVI.

WE RETURN TO THE EAST.

MAY 24.

Continuing Ralston's narrative: On May 24 our camp was visited by nearly all the inhabitants of Bluff City. Some of the boys attended the Mormon Church, and the whole survey was invited out to dinner. It is needless to say that the invitation was accepted promptly.

MAY 26.

Our work has steadily progressed on the maps, notes, and developing photographs. We bought fresh beef of the Mormons. Our relations with them have been cordial and they have been very kind to us. Cox, our cook, became very insolent and stubborn this morning. In fact he has been trying to run the outfit the last month or so. He demanded his money immediately and threatened to attack the outfit if it was not forthcoming. As Moorehead was away he thought we were out of funds, but we secured the money, paid him off, and discharged him; he taking his wagon and three horses. Smith also left, saying he did not want to go back to the settlement. Smith is a strange character and there seems to be a mystery about him.

MAY 28.

Yesterday the mail came and we were very glad to receive letters, newspapers, etc., from the East. At noon to-day a messenger from Moorehead arrived with a copy of his telegram from Minton. This was a great disappointment to all of us. Gunckel had

planned for work in this region and we had opened a few of the boulder ruins about Bluff while waiting to hear from Moorehead. We held a consultation and Gunckel decided to go down to Mancos and see the great ruins there unless we received positive orders to the contrary. Our best road would be by way of Mancos village and we would have gone that way even if Moorehead had not left money for us there at the hotel.

MAY 29.

Left early on our road to Mancos, bidding our Mormon friends adieu. As we only have one wagon now, part of our outfit was loaded on two freight wagons, which were also bound for Mancos. Two of the boys rode burros. Plenty of Indians on the road. One came into Camp Triple Springs the other night and wanted to sell us a horse. Coming after nightfall as he did, we suspicioned something, and told him to come to-morrow. He said, "To-morrow, me go." First he wanted \$25 and then he came down to \$5, and finally said he would trade it for a revolver. In the morning he was there before we were up, wanting to sell his horse. We thought he had stolen it, however, and would not take it.

Camped that night about four miles below Gillett's trading store.

MAY 30.

We stopped at Gillett's store and picked up what provisions, etc., had been stored there. Traded off a lot of corned beef for canned fruit and vegetables. A heavy rain and hail-storm came up in the afternoon and we got wet through. Camped three miles above Marble Hill on the Ute Reservation for the night. It rained again during the night, drenching our beds and ourselves.

JUNE 1.

We got into Mancos late this afternoon. We found a telegram there which Moorehead had sent on his way East. It again stated that Gunckel could go down the Mancos if he so desired, but he must not incur expense beyond the total now on hand. We had got ahead of the two baggage wagons and had no tents as they were with the heavier freight, and having been exposed to the rain for nearly three days, we had supper at the hotel and put up for the night. Moorehead's orders stated that he had received a telegram from Mr. Minton saying to stop the expedition, pay off the men, sell the outfit, and to come East as soon as possible; that the expedition was too expensive to run any longer. It was a great disappointment to us as we had expected to go down the Mancos Canyon before terminating our labors.

JUNE 2.

It was still raining when we got up in the morning and had rained all night. Had breakfast at the hotel and afterward decided to move out of town and go into camp as it was costing too much to stay at the hotel. Although it was still raining hard at 10 a. m., we gathered up our things and moved out of town four and a half miles, establishing camp in the best place we could find. About 3 p. m. the teamster went up to a ranch on a hill half a mile away to see if he could not stable his horses. He found a young man all alone in a big house, keeping bachelor's hall. He told the teamster to bring the party and they would be welcome to what he had, and to put his horses in the barn.

This was a godsend to us as we were half sick and thoroughly disheartened from exposure to the rain, and we were not slow in availing ourselves of his kindness. We shall remain at this ranch until the weather and roads are better. It is utterly impossible to travel over these roads now and we would only lose time by so doing.

JUNE 4.

About ten o'clock the sun came out and the outfit moved over into Thompson's Park about four miles away and camp was made until to-morrow. Gunckel went by train to Durango. He will write the last article, and see about selling the outfit.

JUNE 5.

Reached Durango at 10 a. m., making camp near town. Pitched the tents, made inventory of all our stuff, and put it in order ready for sale. Many of our things are in a bad way on account of the three days' heavy rain. Some of the photographer's plates are spoiled. It may take two or three days to sell the outfit, but we will do the best we possibly can. Then most of us will go East. Mr. Rowley, the naturalist, will remain five weeks more to complete his collection, and go up Pine River, where game is more abundant.

The above entry was the last made by our expedition.

When I reached home suit was instituted against Mr. Minton's people and part of our expenses were recovered.

In conclusion I may add that the untimely end of our work was a great personal disappointment to me. We were better equipped to do good work than any survey sent to that country up to 1892—with one exception, that of Cushing's. After the difficulties, etc., one may be pardoned for resenting the criticism of two or three men, particularly so when one considers that these men have never experienced difficulty in securing large sums for the various re-

searches they have conducted. It is quite easy to continue a survey when some one else is paying its expenses.

Had Minton kept his agreement, the larger part of southern Utah would have been explored twelve years ago.

And so we returned to our respective homes.

The results of our exploration (the collections) were given to the Department of Anthropology, World's Columbian Exposition, and subsequently to the Field Columbian Museum, where they now are.

The survey notes, maps, negatives, etc., of more than one hundred monuments in the Southwest were handed over to The Illustrated American. Of the ruins represented in our notes, eighty had never been previously surveyed.

Ill fortune seemed to pursue us even after the survey had disbanded. When fire destroyed The Illustrated American offices all the data mentioned above were lost.

THE END.

